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TEAM THRIVE**
Tools For Business
Collaboration (P.14)

**NETWORK
VIRTUALIZATION**
What It Means For
Your Company (P.18)

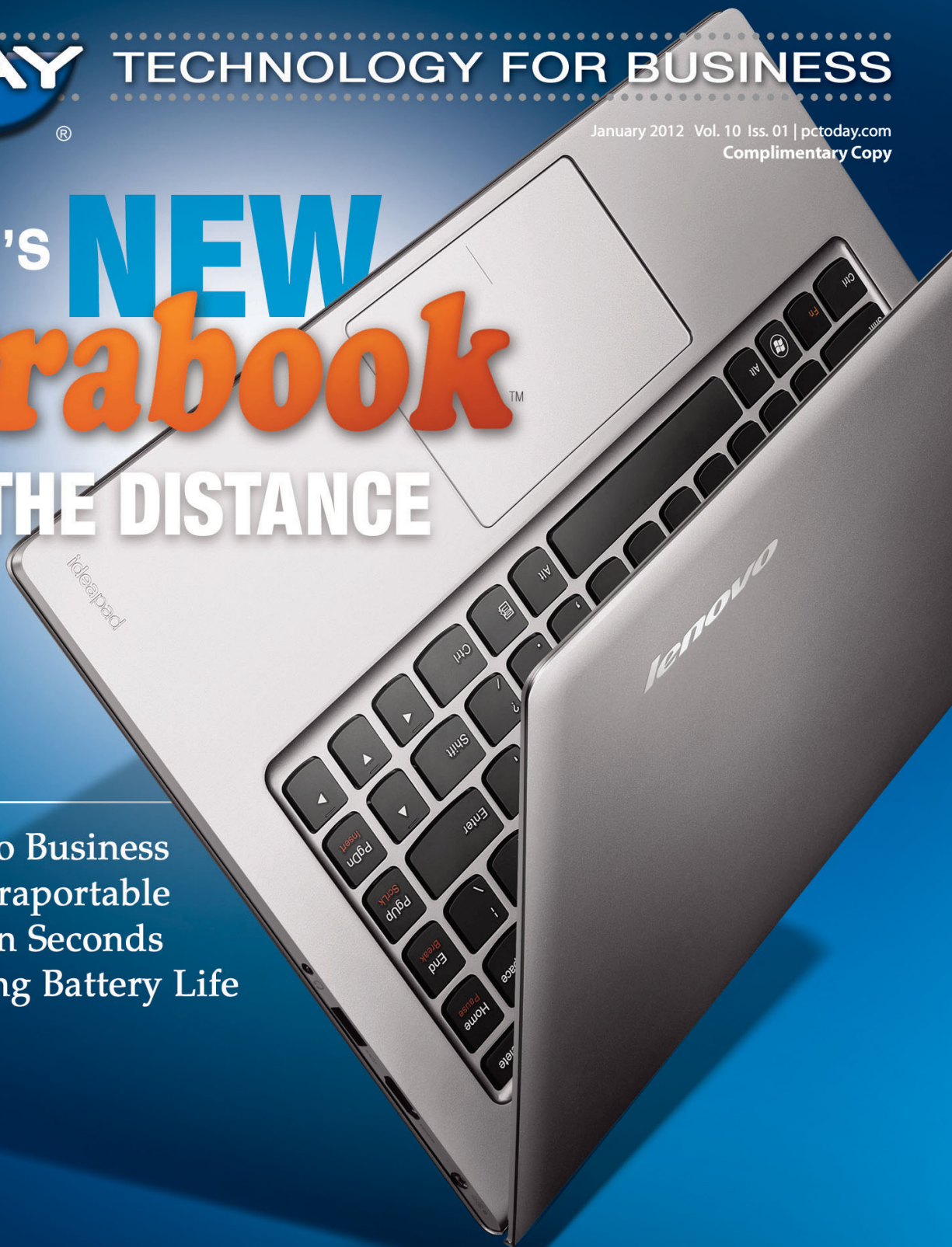
**NEED NEW
DISPLAYS?**
Features To
Look For (P.40)

TECHNOLOGY FOR BUSINESS

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LENOVO'S **NEW** **Ultrabook** GOES THE DISTANCE

Get Down To Business
With An Ultraportable
That Boots In Seconds
& Offers Long Battery Life



Lenovo recommends Windows® 7.



THE **DO**
INSIDE

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ON THE COVER

An Ultraportable That's Ultra-Talented

Lenovo's new IdeaPad U300s Ultrabook™ is thin and light but far from a lightweight when it comes to performance. In addition to powerful processor and memory options, the U300s features a solid-state drive, durable build, and the ability to boot up in seconds. Turn to the Essential Business Tech department for a look at the brand new ultraportable laptop.



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➤ *Mobile Office*

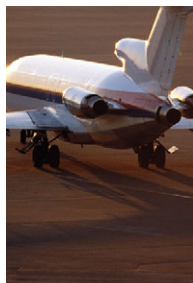
Highly useful information for conducting business on the road



66

➤ *Personal Electronics*

Electronics, services, and helpful advice for home and leisure



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➤ *Business Travel 911*

Fast tech support especially for traveling professionals

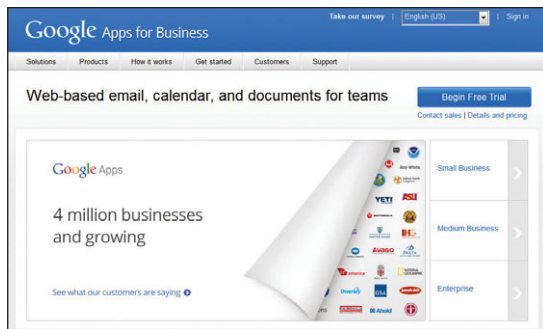
CORRECTION: The president and CTO of Pyxis Mobile (pyxismobile.com) is Todd Christy. His name was misspelled in "Mobile App Security" on pages 46-47 of the December 2011 issue.

Scan this QR Code with your mobile smartphone to see our Web site.



GOOGLE'S BUSINESS CUSTOMERS GET MORE FEATURES

► Google has added new features for its Google Apps customers, potentially making the cloud software suite more attractive to business customers. The Google+ service is now available for businesses and other organizations to use, whereas formerly it was only available to individuals using their own names. Organizations can now create Google+ Pages, as well, similar to the way Facebook users can create their own pages for business or other purposes. Google also introduced 24x7 online phone support for Google Apps customers, and



New features are designed to make Google Apps more attractive to businesses.

added mobile device management features to give administrators greater control over Google Apps usage on smartphones and tablets.

MICROSOFT BUYS VIDEOSURF

► Microsoft has acquired VideoSurf, a San Mateo, Calif.-based startup backed by Al Gore. The purchase price has been reported to be around \$70 million, although neither company disclosed the terms of the buyout. VideoSurf scans the Web to find video content, which it then makes searchable for those using the site. Microsoft will incorporate VideoSurf's technology into its Xbox 360 technology. "Over time, as we integrate VideoSurf's technology into our system, we are excited about the potential to have content tagged in real time to increase the speed and relevance of the search results," said Microsoft's Alex Garden in a statement.

CA TECHNOLOGIES PARTNERS WITH GREENPAGES

► Software company CA Technologies and consulting firm GreenPages have entered into a partnership that will bring CA Service Automation and CA Capacity Manager to GreenPages' customers. CA's service automation products help to automate data centers. Its capacity management products focus on improving performance in cloud and virtualized environments. The partnership will also help promote CA's Automation Suite For Clouds and Virtual Placement Manager, as well as GreenPages' Integration and Managed Services solutions.

ADITI ACQUIRES STARTUP CUMULUX

► Aditi Technologies, founded in 1994 and headquartered in Bangalore,

India, has purchased the Seattle-based startup Cumulux. Founded in 2008 by former Microsoft employees Paddy Srinivasan and Ranjith Ramakrishnan, Cumulux specializes in cloud-based enterprise mobility solutions that work with Microsoft's Azure cloud infrastructure. Aditi is a global enterprise software developer and Microsoft cloud partner. Financial and other details about the acquisition were not disclosed.

EBAY BUYS "RECOMMENDATION ENGINE"

► Online auction company eBay has acquired the New York City-based Hunch, which offers a "recommendation engine" designed to find things users like based on their shared data. A press release from eBay cited "Hunch's familiarity with and expertise in tailoring data to meet customer needs" as the company's selling point. That technology "can also be applied to other technology opportunities across eBay, including search, advertising and marketing initiatives, to better surface product and search results based on customers' tastes."

1&1 BROADENS MOBILE ACCESS FOR ITS CUSTOMERS

► For 1&1 Internet customers using Android or iOS smartphones or tablets, there is now an app for working with 1&1 domains. The 1&1 Domain App lets customers search for new domains, order one or multiple domains using the Shopping Cart feature, and find information about the owners of registered domains. The app is free and registration is not required for simple domain searches.

GE & JUNIPER TEAM TO MAKE RUGGED DEVICES FOR MILITARY

► General Electric Intelligent Platforms and Juniper Networks announced they have joined forces to develop rugged network appliances with advanced security features for use in military vehicles, aircraft, and forward-operating bases. GE Intelligent Platforms will sell the devices. The first device, the RTR8GE, is a router that runs Juniper's Junos operating system for network devices and includes firewall, intrusion prevention and detection, and quality of service features for secure Internet communications and data transfers.

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CLOUD ENGINES INTRODUCES MOBILE CLOUD STORAGE SOLUTION

► San Francisco-based Cloud Engines recently took the wraps off of Pogoplug, a storage solution that combines a Web-based service with an optional storage device. Pogoplug is similar to other cloud storage solutions in that it offers a certain amount of free storage (in this case, 5GB) with an option (coming soon) to buy more capacity, as well as stored data access via Web browsers



Cloud Engines' Pogoplug offers data storage in the cloud as well as the option to host your own cloud storage.

and mobile apps. It stands apart from the competition, however, in that customers can optionally purchase a Pogoplug storage device that provides the ability to create or host their own cloud storage. The initial offering is likely to interest individuals and small businesses, with larger business offerings yet to come.

QUALCOMM LAUNCHES NEW MOBILE PROCESSORS

► Qualcomm released a new set of Snapdragon S4 processors for smartphones and tablets, as well as enhanced versions of its Snapdragon S1 processors for entry-level smartphones. Qualcomm designed its S4-class processors with an eye toward 3G and 4G Internet connectivity, which includes higher-end LTE, EVDO, HSPA+, and other smartphones and tablets but also newer "basic" devices that also offer 3G or 4G speeds. For the benefit of cost-conscious OEMs, Qualcomm claims to have kept design, engineering, and inventory costs low for the S4 processors.



WYSE BUYS CLOUD SECURITY COMPANY TRELLIA

► Cloud client computing company Wyse Technology has acquired the Montreal-based cloud security company Trellia for an undisclosed sum. "Combining the IP innovation, skills, resources, and most importantly our joint maniacal focus on customer advocacy of both companies, Wyse will develop and deliver the most advanced mobile cloud solutions through global partnerships," said Tarkan Maner, Wyse CEO and president, in a statement. Trellia makes mobile device management products for Android, BlackBerry, and iOS devices. Its operations will remain in Montreal.

TWITTER BUYS MOBILE SECURITY COMPANY

► The social media company Twitter, which is increasingly attempting to court business customers and prove its value for advertisers, announced the purchase of mobile security company Whisper Systems. Based in the San Francisco Bay Area, Whisper Systems specializes in data security, network security, and encryption solutions for Android operating systems. The buyout will change Whisper Systems' mission dramatically as it discontinues products and branches out into PC-level security development. Twitter will gain security features but it is unclear exactly how it will integrate Whisper Systems. Financial terms of the acquisition were not disclosed.

RED BEND ADDS ANDROID TO MOBILE SOFTWARE MANAGEMENT SOLUTIONS

► Red Bend Software recently introduced vSense Mobile For Mobile Software Analytics for the Android platform. The software provides wireless carriers and manufacturers with detailed real-time information about usage trends and mobile device performance. "Red Bend is the only company able to give service providers both real-time insight from the device perspective as well as the ability to proactively change software in the field in order to make mobile devices and services continuously better in a rapidly changing world," said Morten Grauballe, Red Bend executive VP of products and strategy, in a statement.

AMAZON'S NEW DATA CENTER OFFERS LOWER PRICES IN THE WEST

► Amazon's new data center in Oregon will cost less to run than its California facility and thus will offer AWS (Amazon Web Services) customers a lower-priced option. "Launching this new lower-priced U.S. West Region today is another example of our commitment to driving down costs for our customers," said Andy Jassy, senior VP of AWS, in a statement. "Now," he added, "developers and businesses with operations or end users near the west coast of the United States can use our U.S. West Infrastructure at an even lower cost than they could before."

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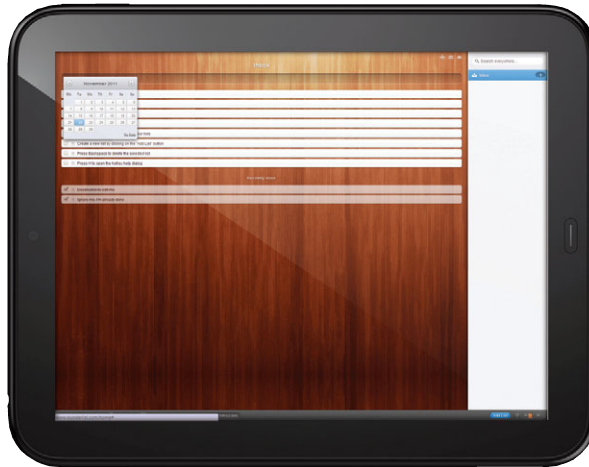
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INTEL CAPITAL FILLS APPUP FUND WITH \$100 MILLION

► Intel Capital announced it has created a \$100 million Intel Capital AppUp Fund it will use to invest in companies that develop applications and digital content for mobile and PC platforms for Intel's AppUp mobile device app store. Intel is initially investing in Urban Airship (www.urbanairship.com), a mobile PaaS (platform-as-a-service) company, and 4tiitoo (www.4tiitoo.com), a tablet developer and creator of WeTab OS. Arvind Sodhani, Intel Capital president and Intel executive vice president, stated, the fund will "help encourage the creation of companies interested in delivering or enabling applications that enhance and extend the online experience for the 15 billion devices expected to be connected by 2015."



6 Wunderkinder recently received \$4.2 million in funding for its Web- and mobile-based productivity tool business.

6 WUNDERKINDER NETS \$4.2 MILLION FOR PRODUCTIVITY TOOL EFFORT

► 6 Wunderkinder (www.6wunderkinder.com), a startup founded in Berlin in 2010 that develops apps for the Web and Windows, Mac, Android, and iOS platforms, recently received \$4.2 million in Series A financing from Atomico, a London-based venture capital firm

Niklas Zennström, co-founder of Skype, heads up. 6 Wunderkinder's first product is Wunderlist, a free task-management tool for creating to-do lists users can share with others. The company will reportedly use the latest funding to add sales and marketing employees and speed up product development for Wunderkit, an upcoming "state-of-the-art platform that provides a central place for individuals to focus on their personal and professional work, with an emphasis on collaboration."

BOUNDARY RAISES \$4 MILLION FOR PUBLIC CLOUD MONITORING BIZ

► Boundary (www.boundary.com), a company that CEO Benjamin Black, former Amazon EC2 designer and engineer, founded to provide real-time network monitoring-as-a-service tools, has raised \$4 million in a Series A funding round that Lightspeed Venture Partners led. Boundary describes its service as enabling "DevOps teams continuous visibility into their network and application traffic flows in public cloud environments like Amazon EC2 or private cloud data centers." Boundary bills the SaaS-based platform as the industry's first to provide real-time monitoring without requiring hardware probes and that offers "unmatched one-second granularity measurements processing millions of metrics per second."

MOBILE PAYMENT PROVIDERS ZOOZ SECURES \$1.5 MILLION

► Zooz (www.zooz.co), a startup that offers a "secure cross-app platform that creates a familiar, unified check-out," recently raised \$1.5 million in funding in an effort led by lool ventures (lool.vc) and involving the participation of seven other investors. Essentially, after developers add several lines of code to their applications, Zooz provides a one-click "unified user interface to complete the payment process." In addition to indicating that Zooz is "highly secure" and keeps "sensitive details from being exposed to each app," the company states that the payment method ensures that users never leave the app.

STOCK ANALYSIS PROVIDER YCHARTS ACQUIRES \$3.25 MILLION

► YCharts (www.ycharts.com), a company that professes to let "investors be their own stock analysts" by providing free tools, Web-based charts, and objective data based on more than 10 years of history for more than 5,000 stocks, has raised \$3.25 million in Series B financing. To date, the company has raised \$4.75 million in funding and cites more than 400,000 investors in its community base. Beyond offering free tools, YCharts offers a Pro version that provides 30 years of history, advanced calculations, exclusive pro stock ratings, and other features. Reportedly, the recent funding will go toward expanding the company's team, increasing marketing, and scale infrastructure.

Every network is unique Every security solution should be too

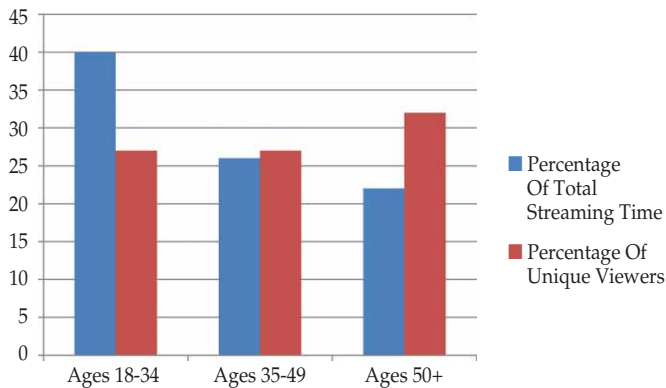


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►► Online Video Streaming By Age



PERCENTAGE OF VIDEO STREAMING IN U.S. SURPASSES TOTAL UNIQUE STREAMERS

► According to The Nielsen Company, the total minutes spent streaming videos online isn't proportional to the number of unique viewers watching videos. In fact, the streaming rate has doubled in the last three years, faster than the rate of growth in the number of viewers. Nielsen reported in August 2011 that the 18- to 34-year-old demographic range viewed the most minutes of video, accounting for 40% of total streaming time. The next largest group engaged in online video activity consisted of the over-50 viewers. They were responsible for 22% of the total streaming time, collectively watching 9 billion minutes of video from home and work computers.

ONLINE NEWS OUTLETS TWEET TO PROMOTE OWN ORGANIZATIONS WORK

► Most major news organizations tweet regularly, but a recent survey of 13 media platforms revealed that the media outlets use Twitter "as an added means to disseminate their own material." The Pew Research Center's Project for Excellence in Journalism and The George Washington University's School of Media and Public Affairs collaborative study analyzed 3,600 tweets during one week of tweeting by major news organizations such as *The Washington Post*, *The Huffington Post*, *The New York Times*, and 10 others. The results showed that 93% of tweets included links to the news outlet's own website. Most organizations didn't use their respective Twitter feeds to gather data from readers—only 2% of tweets requested first-hand accounts.

SMARTPHONE SALES SKYROCKETED IN 2011

► With global sales of mobile devices topping out at 440.5 million units in Q3 of 2011, it's not surprising smartphone shipments totaled 115 million, which was a 42% increase over the same quarter in 2010. According to Gartner, smartphone sales made up 26% of recorded mobile phone sales in Q3 2011. Nokia remains the leader in worldwide mobile device sales to

end users with approximately 24% of the market, a slight decrease from 28.2% in the previous year. Samsung is in the No. 2 spot behind Nokia with 17.8% of the market share, followed by LG Electronics (4.8%), Apple (3.9%), ZTE (3.2%), and Research In Motion (2.9%). For popular mobile operating systems, the Android OS took in 52.5% of the Q3 market last year. Symbian accounted for 16.9%, while Apple's iOS garnered 15%.

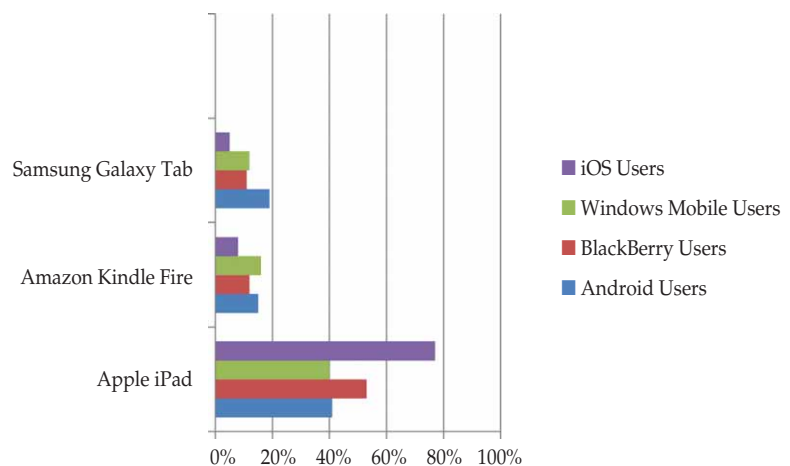
TABLET USERS PREFER APPLE IPAD

► In a recent survey conducted by Maritz Research, 2,500 participants had the option to choose one of 14 different tablet models from 11 vendors. Current Android, BlackBerry, and Windows Mobile device users said they would prefer to purchase the iPad over similar tablets. Among current BlackBerry users, 53% reported they would choose the Apple iPad first, whereas 12% preferred the Amazon Kindle Fire. Of the Android smartphone users surveyed, 41% favored the iPad and 40% of Windows Phone users responded in the same way.

HALF OF AMERICAN ADULTS HAVE MOBILE PHONE APPS

► The Pew Research Center's Internet & American Life Project survey calls attention to the increasing number of adult cell phone owners that have apps on their phones. In September 2009, 22% of adults had downloaded apps to their cell phones, while in May 2010, 38% had phones that had pre-loaded apps. As of August 2011, the percentage of users with proprietary apps and third-party apps reached 50. In addition, Pew Research questioned mobile app users about tablet use. The findings revealed that out of the 10% of U.S. adult tablet owners, 75% had downloaded apps to their tablets.

►► Non-Apple User Tablet Preferences



Warning



Low Disk Space!

You are running out of disk space on Local Disk (C:). To free space on this drive by deleting old or unnecessary files, click here...

Free up Disk Space in a Quick and Easy Way

This is so typical – you think you have more than enough free disk space only to discover the opposite. You can't sync your devices or upload photos from your digital camera because there just isn't enough space. When this happens, most people start deleting files and end up deleting something important. But there is a better solution – run Easy Duplicate Finder™ to remove duplicate files.

All computers have duplicate files. Think of how many times you might have saved the same file in two different folders, uploaded your photos twice, or edited a document and saved multiple versions. Easy Duplicate Finder™ is the tool that makes managing duplicate files really easy. It will intelligently detect useless duplicates by matching them by name, size, date and even content. The program will then display the results and let you delete duplicates in just one click.

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The New Lenovo® IdeaPad® U300s

An Ultrabook™ That's Ultra-Talented

Lenovo's (www.lenovo.com) IdeaPad U300s Ultrabook™ presents a bit of dichotomy that turns out to be a very good thing. Although the U300s is incredibly skinny, it's anything but scrawny. Despite being blazingly quick out of the gate, it also has tremendous stamina. Though the U300s sports an attention-grabbing exterior that inspires creativity, it's stylistically understated and graceful. And while the U300s is an ideal match for the most steadfast of workers, it's more than capable of helping you let your hair down and play. In short, the U300s possesses the traits connoisseurs of top-shelf mobile devices demand: uncompromising performance, portability, and versatility.

PRIMED FOR PERFORMANCE & SECURITY

Time is precious, especially for busy execs. To that end, the U300s gets you working in a hurry by booting up in as little as 10 seconds thanks to the inclusion of a lightning-fast 256GB RapidDrive SSD (solid-state drive) and Enhanced Experience 2.0 RapidDrive SSD technology. Once running, the expertly engineered U300s can keep up the quick pace by powering on such high-end components as a 1.8GHz 2nd Gen Intel® Core i7-2677M CPU with Intel Turbo Boost Technology 2.0, 4GB of DDR3 RAM, 802.11n Wi-Fi connectivity, USB 3.0 and 2.0 ports, and Windows® 7 Home Premium 64-bit operating system.

Enhancing the U300s' speedy performance is its impressive stamina. Here, the U300s will give you a full day's work with up to eight hours of battery life per charge (30 days standby time). If you should exhaust the charge, the included Lenovo RapidCharge technology lets you recharge the U300s' battery to up to 50% capacity in just 30 minutes.

In terms of security, you can rely on BIOS-embedded antitheft protection (free trial included) to remotely track the U300s if it's stolen, and Lenovo OneKey Rescue System to back up and restore your data. The included Google Chrome, Microsoft Office 2010 (trial version), and Microsoft Security Essentials provide Web browsing, productivity, and security functionality out of the box.

BUILT TO LAST

Arguably as impressive as the U300s's performance is the device's sleek, lightweight design. Resembling a bound book, the U300s is just 0.59 inches thick and weighs only 2.9 pounds, making this ultraportable a perfect briefcase companion. With svelte and streamlined U-shaped corners, the U300s can also withstand wear and tear thanks to an anodized full-sheet aluminum exterior that's sandblasted smooth and available in Graphite Grey.

The U300s's interior, meanwhile, reveals a spill-resistant AccuType keyboard featuring individual rounded keys that produce accurate typing. Further, the use of Intel Advanced



Cooling Technology and two ultra-quiet fans draw air up through the breathable keyboard to let the U300s operate coolly on nearly any surface. Elsewhere, in addition to a cool-touch palmrest, the U300s's glass Intelligent Touchpad is sprawling in size and provides multi-touch support.

READY TO PLAY

Whether your preferred method of relaxation is streaming HD video, dialing in an Internet radio station, playing an online game, or doing some face-to-face video chatting, the U300s is up to the task. In addition to the slim 13.3-inch HD (1,366 x 768) 16:9 widescreen display powered on Intel GMA HD 3000 graphics, you'll find a 1.3MP HD webcam and stereo speakers that output enhanced SRS Premium Surround Sound™ audio. Elsewhere, in addition to an HDMI-out port, the U300s integrates Intel WiDi (Wireless Display) technology, which enables wirelessly mirroring the image on the U300s's display on an HDTV or monitor, including streaming 1080p-quality video.

Extremely powerful, portable, adaptable, and attractive, the IdeaPad U300s Ultrabook™ provides the means to get busy in a hurry at work, home, or on the road.

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►► Explore The Features

① **13.3-inch HD Display**

Powered by integrated Intel GMA HD 3000 graphics, the U300s's ultra-thin 13.3-inch display provides a 1,366 x 768 resolution in a 16:9 widescreen format. Built-in Intel WiDi (Wireless Display) technology, meanwhile, enables mirroring the image on the U300s display to an HDTV screen or external monitor.

② **Integrated 1.3MP Webcam**

The webcam and accompanying built-in microphone give users the ability to film video clips in 720p HD quality, as well as conduct video chats with co-workers, friends, and family.

③ **Ports & Wireless Connectivity**

In addition to integrated Bluetooth and 802.11n Wi-Fi connectivity, the

U300s provides USB 2.0 and USB 3.0 ports, HDMI out, and headphone/microphone ports. The built-in stereo speakers, meanwhile, output enhanced SRS Premium Surround Sound audio.

④ **Anodized Aluminum Exterior**

Featuring smooth, rounded corners and streamlined edges, the U300s emits a minimalistic book-shape quality. Measuring just 0.59-inch thick, the exterior is wrapped in a full sheet of durable anodized aluminum that's sandblasted for smoothness and available in Graphite Grey.

⑤ **Intelligent Touchpad & Cool-touch Palmrest**

Surrounded by a cool-touch palmrest, the large glass Intelligent Touchpad provides multi-touch support that

makes scrolling, zooming, and rotating intuitive and easy.

⑥ **Intelligent AccuType Keyboard**

Underlying the AccuType keyboard's comfortable, rounded, individual keys is the inclusion of Intel Advanced Cooling Technology. Using ultra-quiet dual fans to draw air up through the breathable keyboard, this technology allows for cooler operation whether the U300s is resting on your lap or any other surface.

⑦ **OneKey Rescue System**

The U300s makes backing up and restoring data an intuitive, painless process with Lenovo OneKey Rescue System technology and a OneKey Rescue button located on the ultraportable's left side.

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Share, Collaborate & Empower

Unlock The Power Of CMS

The scenario is all-too familiar: Someone from marketing wants to post information about a new product and a photo to go with it on the company website. In order to do that, they must first email text and an image file to the webmaster, who then posts the content. But once it is posted, the CEO reads the content on the Web and sends an email to the marketing person about changes and updates that must be made. The problem is that the webmaster is out of town for a week and can't be reached. Meanwhile, the legal department is fretting over liability issues associated with the Web post.

In the same enterprise, someone from the sales department emails an expense report with copies of scanned receipts to a manager for approval, who then sends the document to accounting. But because there are some issues with a hotel bill and some copies of receipts are missing, accounting sends the

Key Points.....

CMS allows multiple users to share, make changes to, and collaborate on content in real-time through a Web-based template.

..... CMS for website management can give more non-technical users the freedom to make changes to content when they need to, while CMS geared for intranet applications can help reduce costs by boosting productivity.

..... Different versions of CMS can vary significantly from one another, so finding the right fit needs to involve carefully matching the features to the process.

..... Users must not only learn how to use CMS when an enterprise adopts it, but oftentimes, they must also change the ways in which they do their jobs.

expense report back to the salesperson, who must then change the report and begin the process over again.

These are only two real-world examples out of a magnitude of potential cases that illustrate content collaboration, and more importantly, how inefficient it can be. However, CMS (content management system) software can help, by allowing users to more easily complete work tasks and processes that require input from several parties.

WHAT CMS IS

CMS allows users to access a single Web-based interface to collaborate on content that is shared and made available to those that need to access it on a real-time basis. In this way, CMS can facilitate the management of content and workflows that require direct input from two or more users. Common features of CMS include the ability for users to edit and store content with a shared template.

In addition to updating websites or processing expense reports as described in the example above, CMS can be useful for a number of tasks. These might include processing and creating invoices, contracts, bill of lading, purchasing orders, customer records, policy documents, or any content that requires input from different users.

For website updates, CMS allows users to make changes to content on a template, while others can make changes to it without having to rely on the webmaster to complete the task. Expense reports are filed and stored with scanned receipts, which anyone who needs to can process and change as needed.

LOW-HANGING FRUIT

Enterprises commonly get their feet wet with CMS by using it for Web publishing. This is because almost all businesses have a website and they need an efficient way to update it on a regular basis, which CMS can help them to do more efficiently.

As with the first scenario described above, users without access to CMS

often have to post content by emailing it to the webmaster. The webmaster also has to intervene anytime changes must be made. Instead, non-technical users can use CMS to post and publish content directly on a commonly shared template in a matter of minutes. Anybody who needs to change the content or approve it prior to publication does so on the same template.

As a real-world example, CMS has lead to significant improvements in the management of the website for the Schwartz Center for Economic Policy Analysis at the New School in New York, says Bridget C. Fisher, who works as an associate director for the Schwartz Center For Economic Policy Analysis (www.economicpolicyresearch.org) at the New School in New York. Posting new Web content used to be very difficult and complex, but now it is easy and straightforward, she says.

Fisher's team uses Joomla (www.joomla.org) for its CMS website needs, which she says is free to use as an open source alternative while installation, training, and design costs totaled \$12,000. "With CMS, [our team] can actively engage in putting content up on the website," Fisher said. "Previously, it was terrible and complicated. I had to call up the Web department at the university just to do anything."

Fisher also says that CMS has streamlined how content is collaboratively created and posted. While she describes herself as a non-technical user, Fisher says she is able to complete advanced tasks for the site by herself, such as the warehousing and archiving of research papers, posting video content, creating search functions, or adding blog rolls. While they take more time to complete than posting text and pictures, they are not overly complex or difficult with CMS. "Before CMS, I had to go through the webmaster to do these types of things, which I usually would just not have time to do," Fisher said.

One of the beauties of Web CMS is that different users who need to can access content with an Internet connection. For Fisher's team, anyone can



Bridget C. Fisher

associate director,
Schwartz Center
For Economic Policy
Analysis

"With CMS, [our team] can actively engage in putting content up on the website. Previously, it was terrible and complicated. I had to call up the Web department at the university just to do anything."



Alan Weintraub

analyst, Forrester
Research

"For internal [collaboration], CMS can work for anything for which you are acquiring information and integrating it into a back-office system while automating the process. It's going to have an easier and high ROI because it is really hard to do those things [without CMS]. You can show efficiencies and speed to process."

add or collaborate on the development of basic or feature-rich content by accessing the website template from any Internet-connected PC. Previously, content for the SCEPA website could only be uploaded from a single computer—which required the help of the webmaster. “With [Web] CMS, you can update content anywhere,” Fisher said.

LOW-HANGING ROI FRUIT

When it comes to finding ways that CMS can generate a direct ROI, CMS for website-content collaboration represents “low-hanging fruit,” says Alan Weintraub, an analyst for Forrester Research (www.forrester.com).

“Content on the website that is meant to drive commerce and customer satisfaction is all about making the customer or the external party’s experience with your company richer as a first entry point,” Weintraub says. “It is easy for someone to justify expenditures and implementations on external customer engagement. You can actually attribute ROI directly to customer satisfaction [by using CMS] for websites.”

Indeed, enabling enterprise users to more effectively develop and enrich website content by improving how they manage their websites with CMS can ultimately help to form more direct ties to customers.

“There is a strong affinity between what you do on the website and what you do in your stores or retail establishments when you are helping your customers make purchasing decisions or are trying to make them more loyal,” says Melissa Webster, an analyst for IDC (www.idc.com).

CMS also has its use for those who need to collaborate on content internally on an intranet. However, demonstrating ROI is more difficult for intranet projects or collaboration on internal content than it is for Web-based CMS projects, Weintraub says. This is because intranet CMS applications are not used to boost revenues, he says, which websites can be made

to do by improving customer reach. Still, CMS for intranet applications can certainly help enterprises reduce costs by making certain business processes more efficient.

Intranet processes that require collaboration by several parties that can benefit from CMS include transactional applications, such as the creation of invoices, contracts, and bills of lading, Weintraub says. “For internal [collaboration], CMS can work for anything for which you are acquiring information and integrating it into a back-office system while automating the process,” Weintraub says. “It’s going to have an easier and high ROI because it is really hard to do those things [without CMS]. You can show efficiencies and speed to process.”

When drafting contracts, for example, someone in sales can upload agreement terms and other client-specific information into an existing contract template. A sales supervisor can check the contract’s terms and make changes before the legal department adds its input by making final changes directly to the content on the template. This can be done anywhere where a user has a Web

connection. “For these types of applications with [CMS], I can cut out approval steps so my ROI might be getting a contract approved faster and expediting the workflow process,” Weintraub says.

CMS for internal applications is often very industry-specific, Weintraub adds. Examples include CMS that is geared for electronic medical records for healthcare organizations, student regards for schools, or policies for insurance vendors.

Microsoft’s SharePoint (sharepoint.microsoft.com) represents a low-cost option with which SMBs can become acquainted with CMS for intranet applications, Weintraub says. While it lacks the features of more high-powered CMS alternatives, the software offers an affordable option with which SMBs can share and collaborate on content.

If an enterprise finds that SharePoint serves as an efficient way for users to collaborate on content, it can then build on the application. “You can later matchup what your requirements are and what SharePoint does and then you can supplement it, since CMS vendors offer hooks to SharePoint with [compatible CMS packages],” Weintraub says.

THE RIGHT FIT

The business processes for which CMS is used can vary tremendously. Some work groups, for example, might use CMS to collaborate on drafting legal documents, while human resources might take advantage of it to update HR records, and another department will need it to collaborate on website content. Consequently, CMS vendors will often tailor their offerings to meet the needs of a particular business process.

The common thread among different versions of CMS is how they facilitate content sharing and collaboration among user groups. But how they do that, their specific features, and the designs of the



Jeffrey Mann
analyst, Gartner

“[CMS] is a very wide area. So take a step back and decide what it is you really want to do and look for the CMS tools that can help you do that instead of just looking at the base technology and deciding how to apply it.”



Melissa Webster
analyst, IDC

“Organizations need many things. You might get them from the same CMS vendor, but you also might not. There is also really no downside by using a different vendor for various content-management applications.”

different interfaces can vary, which is important to keep in mind when making purchase decisions. "There are very different content needs and workflows to think about [in an enterprise] when selecting CMS," Webster says.

Certain industries can also have specific requirements for CMS features for intranet use. "The needs vary between pharma vs. government vs. healthcare vs. financial vs. manufacturing and so on," Webster says. "And then [within these industries], there are different business functions."

Reflecting the fragmented needs of the market, several hundred vendors offer CMS. Microsoft, OpenText, and Oracle are among the largest players. But unlike other software markets, in which a handful of players dominate the sector, hundreds of smaller players collectively command a large share

A single vendor will also likely not serve as the best fit to provide an enterprise with all of its CMS needs. Since different flavors of CMS are often better geared for often-unrelated business processes, a single vendor may not be able to adapt its version of CMS to meet all the requirements that a particular business or industry might have.

"Organizations need many things. You might get them from the same CMS vendor, but you also might not," Webster says. "There is also really no downside by using a different vendor for various content-management applications."

A CULTURAL SHIFT

A potential stumbling block enterprises face when adopting CMS is that it has the potential to disrupt

"With CMS adoption, there is a learning curve," says Weintraub, "but there is also a huge cultural change-management issue."

An enterprise may install CMS, yet users might try to continue working the way they used to by bypassing the CMS system if they can, especially in the early stages of its rollout.

"Due to the fact that people have done it their own way for so long, whether it is by sharing documents on drives or other things, they don't have to go directly to the new CMS system, because they can find ways around it," Weintraub says. "There are ways around managing internal documents, for example, because there is always an alternative-storage mechanism that lets you get around the system."

The task for CMS software trainers is to demonstrate to users how changing the ways they do their jobs can help them to become much more productive. During the training phase, it is important that users are coached on how it is important for them to make CMS part of their daily work processes in addition to teaching them the mechanics of how it works.

"It is not so much a learning curve as it is a cultural issue of getting people to move from a very informal structure for managing their content, to a more formal structure for managing their content," Weintraub says. "Getting people to adjust the way they work is more difficult."

Adoption usually is faster for Web content than it is for internal applications, Weintraub says. "In the Web world, you empower people to post their own content and you give them templates and workflows to allow for that content to go through. People also tend to quickly adjust to using a template to drop in a [word processing] document or text," Weintraub says. "But in the internal CMS world, asking people to adjust the way their organization manages, shares, [and collaborates on] content is a lot harder." ●

►► Content Management Revenues Worldwide

2010 - \$4.3 billion (5.3% growth)

2011 - \$4.5 billion (6.5% growth)

SOURCE: IDC

►► Percentage of SMBs interested in CMS

2010 - 56%

2011 - 69%

SOURCE: FORRESTER RESEARCH

of global CMS sales, often by meeting niche needs certain industries and enterprises have. Popular open source alternatives also exist, which include offerings from Drupal and DotNetNuke, as well as Joomla.

Given the wide range of available CMS versions and the typically very different features they offer, enterprises need to determine exactly what their content-collaboration needs are when making purchase decisions.

"It is a very wide area," says Jeffrey Mann, an analyst for Gartner. "So take a step back and decide what it is you really want to do and look for the CMS tools that can help you do that instead of just looking at the base technology and deciding how to apply it."

how users accomplish work tasks. While the disruption obviously is not supposed to be a bad thing as CMS should ultimately make certain processes more efficient, users may need to take a while to adapt to the changes in the ways they work.

The webmaster, for example, may not be keen on losing some of his job responsibilities to co-workers who start uploading content or even changing page layout while users may be happy to continue emailing content for posting. In accounting, someone in charge of payroll records may not like the idea of converting a tried-and-tested paper-based archival system to an electronic one that can be shared and accessed by many users.

Network Virtualization

Old Hat Or New Hope?



Network virtualization, which Cisco Systems describes as “efficient utilization of network resources through logical segmentation of a single physical network” is a concept that’s at once old and new. VPNs (virtual private networks), common now in many firms, are early examples of virtualized networks.

Yet, in late 2010, Toby Owen, product manager for cloud and managed solutions provider Rackspace (www.rackspace.com), predicted network virtualization would be an important development for 2011, with companies performing upgrades “setting us up for faster progress in the years beyond.” So, how can a mature solution be new? As with many

computing topics, the answer lies in technology developments that are both convoluted and straightforward.

SIMPLE SOLUTION

Cisco’s technical definition can be explained more simply as dividing the traffic pipeline of a traditional, hardware-based network into multiple, individual tunnels—smaller networks

Key Points.....

Network virtualization is not a new technology, but new developments are making it more practical for smaller firms.

The newest Internet protocol, IPv6, will provide enough network addresses to enable widespread use of virtual networks.

Cloud-based solutions already use virtual networks, so the cloud is an easy point of entry for companies wishing to try the technology.

The future of virtual networks will include self-provisioning portals where the network automatically manages itself and companies can turn the networks on and off like light switches.

Until recently, network virtualization was more common in major new projects, such as Resorts World at Sentosa (shown), than for smaller (especially existing) networks.



that service a specific population or enable a dedicated task. In much the same way that multiple phone conversations can run over the same line without the users experiencing cross-talk, virtual networks can co-exist as individual tunnels (small or large) without interfering with one another.

As we mentioned earlier, a VPN is an example of a virtualized network—it's an isolated, secure data tunnel that exists, not as a physical resource, but rather as one created and managed by software. As Neil Matchan, director of IT Services for IT solutions provider InterDev (www.interdev.com), points out, "Even a DMZ [demilitarized

zone] and a firewall are effectively network virtualization. You are still making a separate network within another network." (A DMZ is a specialized port that provides unrestricted access to certain corporate resources for a specific purpose, such as serving content to the Web.)

However, while VPNs and DMZs fit the broad description of network virtualization, they are a long way from the solutions envisioned for this technology's future.

BUSINESS CASE

Matchan describes a number of scenarios where network virtualization could be a real boon for SMBs. Perhaps foremost are with companies that face strict regulatory requirements, such as those in the financial and healthcare sectors. Segmentation of specific resources via a dedicated virtual network is easier to secure and shut down than restricted access to a general network.

In the current economy, he says network virtualization could also serve well for companies engaged in mergers or that need to combine resources with those of another company to qualify for a contract bid. "We are helping a company through a merger right now," Matchan says. "Each company needs to maintain its own IP address, so how can we bring these two companies together so they can talk? Network virtualization allows us to segment two halves of one umbrella company."

"You could even create a virtual network within one server box," he continues. "Let's say transactions between the two servers need to happen at very high speeds, and putting them onto the general network slows things down. You create a virtual switch shared between the servers. They are the only things talking to each other and it creates a much faster network. Such a solution would facilitate exchange of large quantities of data, such as medical imaging or insurance histories."

Another example Matchan offers is software or video development firms where five employees need 10Gb (gigabit) network speeds, but it's not feasible to purchase five 10Gb switches at \$10,000 apiece. With a virtual network, he says, "you wouldn't need individual switches. Also, you could make the developers high priority. They get full resource and the rest goes to your employees. On days when they're not using it all, the extra bandwidth is shared with the rest of the office."

Doctors' offices that need to hook into a hospital's network; architectural firms wanting to let subs use their large format printer but nothing else (a virtual network can provide access as limited as a single printer); the list of possibilities goes on and on. Best of all, says Matchan, when properly orchestrated, virtualized networks can be easier to manage and secure.

In the example of the shared printer, he says, "Rather than give vendors usernames and passwords on my network, I only have to worry about the tunnel to the printer. When the project is over, I don't have to reset 15 passwords. I just shut the tunnel down. And, because they never had access to the network, they could not have compromised it."

WHY NOW?

With all these benefits, why hasn't network virtualization gotten more attention before now? On a large scale, it has. In the past few years, entities from the Zurich airport to Resorts World at Sentosa (a mega-complex in Singapore with six hotels, a casino, and four theme parks) have used network virtualization to increase network flexibility while reducing energy consumption.

Furthermore, it's a core component of cloud computing, so anyone having data or applications hosted in the cloud is already running on a virtual network. According to Steven Walters, manager of solutions architects for cloud services provider NSPI

(www.nspi.com), “Network virtualization is the ability to create a true multi-tenant infrastructure. The network traffic is isolated and controlled so no customer impacts any other.”

Walters points out that the technologies developed to securely segregate multiple customers’ data and application delivery can be used to service individual customers, as well. He also notes that economies of scale have made it affordable for smaller firms to leverage the power of network virtualization already built into cloud solutions.

“You cannot deploy and manage these systems and use them at 10 to 15% utilization and have any sort of cost-benefit ratio,” he says. “It’s like virtualized servers—it becomes cost effective when you get to 70 to 80% utilization of those resources.”

THE UNIVERSE EXPANDS

If cloud computing brought network virtualization to small businesses, another evolving solution may end up making the technology virtually ubiquitous (no pun intended). The current Internet protocol, IPv4 (Internet Protocol Version 4), is slowly being replaced with a newer protocol, IPv6.

IPv6 offers some major benefits over IPv4, including more robust security. However, more important for network virtualization is the way IPv6 works with network addresses. (Just as a house requires a street address, every point of access on a network, whether virtual or physical, requires its own network address, such

as 34.126.7.9. These strings of numbers underlie the domain names we recognize as website URLs.)

First of all, IPv6 will make it possible for enormous virtual networks to be created and then dissolved at will, because it uses an addressing scheme that can support far more addresses than IPv4. Whereas IPv4 supports approximately four billion addresses, experts peg the number of addresses that IPv6 can support at 3.4×10^{38} , give or take a few trillion. As Dave Evans, chief futurist for Cisco, has stated, that’s close to 50 thousand trillion trillion addresses for every person on the planet.

With IPv6 as the standard, we should never run out of IP addresses—at least not in the foreseeable future—and companies can use as many as they need for their virtual networks. With IPv4 as the standard, the eventuality of an address shortage made such cavalier use of them impractical and expensive.

In early 2011, that eventuality became reality when the Internet Assigned Numbers Authority, which allocates IP addresses in bulk, ran out. Within a few years—certainly less than a decade—the entities who hold the remaining allocations will run out, too. So now, the race to IPv6 is on.

IPv6 is already supported by later versions of Windows, but there are a lot of older routers, websites, and other Internet-connected elements—especially in the United States—that need updating or replacing. Needless to say, it’s going to be a very interesting decade for some folks.



Steven Walters

manager of solutions architects, NSPI

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A DYNAMIC FUTURE

For those who jump on board, IPv6 offers other major benefits relating to network addresses (and network virtualization), including the ability for self-configuration. As Owen noted in his report, network virtualization soon will allow “on-demand configuration of network conversations, as needed, to be isolated and private, solely accessible to sender and receiver, and then be dynamically reconfigured for the next conversation.”

Walters concurs. “The industry is moving towards self-provisioning portals. If you want to turn on a new SharePoint server, you could go to a self-provisioning tool, choose a server template, and then publish to the Internet. You could have a three-month project where you are using vendors you might never work with again. You could literally turn the portal on and off as needed.”

And, while these capabilities that are automatically and dynamically configured through IPv6 may not be widely realistic for SMBs yet, firms can easily enjoy similar network virtualization benefits, working with cloud providers or on-premise IT support.

“In a multi-tenant, segmented solution, we can create an extranet on the fly,” Walters says. (An extranet is a network that allows controlled access to company network resources by outside parties, such as vendors or clients.) “It can be completely isolated in the network layer from the customer’s internal system. When those new resources are turned on, they inherit the security and network characteristics already in place, so those systems can live anywhere in that cloud infrastructure.”

In other words, the full potential of network virtualization is still a ways off (and depends upon how fast people hop aboard the IPv6 train), but even the smallest business can leverage its potential now through the cloud or with limited on-premise deployments. It’s pretty exciting stuff. ●



Secure Communications

Network Box Offers Email Security



To understand Network Box's (www.networkboxusa.com) philosophy on email security, just look to the company's white paper on anti-spam protection, which quotes military strategist Sun Tzu: "If you know yourself but not the enemy, for every victory gained you will also suffer a defeat." In other words, you must understand the nature of a spam threat to effectively protect against it. Network Box examines a threat's origin, construction, and execution in order to provide protection with an industry-leading spam detection rate and almost zero false-positives.

UNIFIED PROTECTION

Although many security providers offer standalone email solutions, Network Box doesn't believe email protection "is simply a lineup of antivirus software," says CTO Pierluigi Stella. "There's a lot more to protecting email than just filtering for viruses." Instead, Network Box integrates its anti-spam and anti-malware modules into its Managed Security Services solution, which provides 24/7/365 monitoring and proactive management over nearly 150 different security areas.

UTM (unified threat management) devices at customers' Internet gateway

entry points help oversee the protection, while patented PUSH technology sends anti-spam and anti-malware updates to UTM's within 45 seconds of availability. The combined result is protection much stronger than "separate pieces trying to talk to each other and never achieving any synergy," Stella says.

Network Box's UTM's provide immediate protection against email server vulnerabilities. The device's firewall and IPS (intrusion prevention system) components then apply DoS (denial of service) protection, filter for known exploits, and prevent accidental misconfigurations that let spammers relay messages through the company's email server. The IPS module also collaborates with the anti-spam module to verify email recipients; this prevents harvest attacks that result in receiving and scanning hundreds of messages, sapping bandwidth and CPU resources. The feature is a "good example of interaction between modules—email protection and IPS working together to reduce the amount of spam," says Stella.

FINELY TUNED ENGINES

Network Box's anti-spam protection uses 25 anti-spam engines and 12-plus techniques total, all backed by a database containing roughly 31 million anti-spam signatures. Z-Scan, a variation of the Network Box cloud-based antivirus engine, identifies zero-day spam outbreaks in seconds and recently elevated Network Box's spam-detection rate to 99.4% with almost no false-positives.

The anti-spam techniques include the open standard SPF (Sender Policy Framework) to reduce send-address

forgery attempts, or spoofed email addresses. The Network Box Relationship system, meanwhile, uses a database to track sent messages and establish a score-based, trusted sender-receiver relationship used to enact enforcements.

100% VIRUS PROTECTION

The Tolly Group testing lab has found Network Box 100% effective in preventing malware (viruses, worms, rootkits, Trojans, and backdoor samples) across SMTP, POP3, and HTTP. Network Box's malware protection uses three antivirus engines, Z-Scan real-time anti-virus, and roughly 1,000 policy-based techniques. Policy techniques safeguard against various user actions, including those not requiring a mouse click. For example, if a message contains a hidden object that's activated when the user hovers the mouse cursor over it, protection is in place. "If there is anything hidden, the [device] will block the email, taking the approach of guilty before proven innocent—a legitimate email has no reason to contain anything hidden," Stella says.

The same "block first, ask questions later" approach applies to executables disguised as something else and more, Stella says. URLs that do make it through email filtering are checked against a Google database of URLs known to contain malware or spyware, categorized to determine if the customer's policy allows the URL, and scanned against more than 7 million signatures via three antivirus engines. Thus, "there's still a very high chance that the [UTM device] will stop the attack by blocking the website," Stella says. ●



Secure Your Supply Chain

How Technology Mitigates Supply Chain Risks

Whether natural or man-made, disasters can deliver devastating blows to supply chains around the globe. In fact, you don't need to look far back in history to see examples of this devastation, as evidenced by the recent tsunami that hit Japan, which halted automobile production and led to prolonged low inventory at dealerships worldwide.

"The tragic tsunami hit the automotive industry hard, playing havoc with both Japanese automakers and U.S. automakers," says Fred Thomas, industry director at Apriso (www.apriso.com). "Critical

part shortages became the norm as many supplier plants were wiped out. This was especially true for an electronic chip manufacturer that was a single-source supplier for several automotive OEMs supplying chips for many vehicle systems. Production schedules were cut and new model launches delayed, with the ramifications still being felt today by some OEMs that lost market share as a result."

Of course, even events of a much smaller scale can have drastic effects on a supply chain. For example, Dr. Mark Cotteleer, associate professor of management at Marquette University

Key Points.....

Certain technologies and associated strategies can help to mitigate the wide-ranging supply chain damage caused by disasters and other major interruptions.

Systems for product lifecycle management, computer-aided design and manufacturing, enterprise resource planning, and supply chain management are all critical tools for ensuring continuity.

Supplies and suppliers can become scarce when disaster strikes, but e-sourcing technologies can help businesses quickly get back in the supply saddle.

Because keeping the information flow intact is crucial after a disaster, IT redundancy and robustness are important goals for businesses that depend on supply chains.

(www.marquette.edu), notes that heavy rains in Atlanta in October 2010 caused flooding at two Kellogg's bakeries, ultimately leading to a shortage of Eggo waffles that lasted for months.

"The fact that the 'great Eggo shortage' did not make international headlines, we can be sure, provided little consolation for either Kellogg's or the many grocery chains that experienced rationing in supplies and associated lost revenue and reduced customer service," Cotteleer says. Although it's difficult—if not impossible—to predict disasters, certain technologies can help to mitigate the effects of disasters on supply chain continuity.

FROM THE START

There are many technological approaches to curtailing supply chain risk associated with disasters and other causes of major interruptions. One school of thought looks at the beginning of the supply process—all the way back to the design of the product itself. According to Andreas Lindenthal, partner at consulting firm Kalypso (www.kalypso.com), once disaster strikes, it can be too late to react or put measures in place to switch to a different component or supplier.

"Critical components should be identified, alternatives should be designed, and possible suppliers in different locations [should be] identified. Product lifecycle management, computer-aided design and manufacturing, visualization and virtual mockup, supply chain management, and enterprise resource planning systems are important technologies to



Andreas Lindenthal

partner, Kalypso

"The effects of a supply chain disruption as a result of a disaster have to be identified and addressed long before a catastrophic event occurs."



Fred Thomas

industry director,
Apriso

"Technology only plays part of the role in helping to mitigate supply chain risk. Redundancy must also be considered when evaluating your global business processes."



Tony Moldo

principal, TCO Sourcing
& Consulting

"With the right e-sourcing system in place, it can help drive the process more efficiently, save time, create a cost savings, and help mitigate the risk of missing sales."

help companies to switch components and suppliers quickly in case of a disruption of the normal supply chain," he says.

SOURCING STRATEGY

Successful supply chains depend heavily on thorough preparation designed to circumvent adverse situations that otherwise would leave open the possibility of damage to the chain. Tony Moldo, principal at TCO Sourcing & Consulting (www.tcosourcing.com), says that a well-

managed sourcing process helps to minimize potential damage by addressing steps from supplier identification all the way through to the contract management cycle.

"It may not completely alleviate the damage the organization will feel, but it will help put the organization in a better place than its competitors without a fluent sourcing process," Moldo says. "Utilization an e-sourcing process/system can help streamline the sourcing by saving the organization time and money, allowing the buyer to focus more on driving revenue and less on cutting costs."

With an e-sourcing application, the manufacturer can drive the sourcing process and lessen its reliance on suppliers. According to Moldo, organizations often send out an RFP (request for proposal) and receive multiple proposals that aren't apples-to-apples, which in turn spawns a lengthy clarification process. However, e-sourcing helps to eliminate that process, which helps organizations more quickly source goods,

support companies in these tasks," Lindenthal says.

For example, he adds, PLM (product lifecycle management) and CAD/CAM systems can help manufacturers design and manage alternate components and product configurations that can be used when a primary or preferred component is unavailable. PLM systems can also be used along with visualization and virtual mockup tools to aid in collaboration with worldwide suppliers in the design of alternate components. Further, Lindenthal notes that these systems can help source different components during the design and make the latest design information instantly available to suppliers around the globe if the primary supplier can't deliver.

"SCM systems can help find suppliers and manage supplier information, and ERP systems can help identify critical components based on their value and lead time, plan and manage appropriate inventory levels to maintain production for a certain period of time, procure components, and set up manufacturing procedures for products using alternate components ahead of time. All this will

►► Platform Power

Technology can help a business quickly adapt to a disaster situation to ensure its processes continue without (potentially further) interruption. However, depending on the level of disruption, technology can also help a business accelerate the implementation of a new plan, according to Fred Thomas, industry director at Apriso. For example, with a platform-based approach to manufacturing operations management, a business may find it easier to establish common, standardized manufacturing and supply chain processes across the enterprise.

"What this means is that you can more easily reroute production to a different location, can more readily replace one supplier with another—including all the business processes to accomplish this transformation—and can better manage your labor resources by reallocating to new facilities, should the need arise. This type of technology must be in place across your entire enterprise, rather than at a single plant, or else your options for rerouting activity are severely limited," Thomas explains.

Although it might technically be possible to deploy disparate systems across various locations to help prevent damage to a supply chain, it may not be realistic to expect that the business will obtain real-time visibility and control across those systems. However, Thomas says that a common technology platform can deliver a wide functional footprint that eases integration and delivers flexibility. After all, he says, it could be extremely difficult to transplant an employee to a different office for a month or two while a disruption is being mitigated if that office is using a different system.



Dr. Mark Cotteleer
associate professor
of management,
Marquette University

"Businesses run on data. That is their fuel. If disaster or disruption takes out the data you are in deep trouble. Therefore, it is only logical that you need to take the steps that protect that data and get it where it needs to be, wherever that is, in a time of crisis."

products, and services—a critical trait in times of disaster.

AIM FOR ROBUSTNESS

Although supply-specific technologies are crucial to ensuring continuity, it's important to remember that an organization's general access to information is equally significant. Cotteleer says that disaster might strike at a distant point in the chain, so information technology must be robust enough to survive the disaster and sufficiently integrated to share information required to recover.

"On a grand scale, redundancy is key," Cotteleer says. "More and more large firms are deploying redundant data center capacity in geographically distinct areas in order to protect against catastrophic failure. Smaller firms are

considering moves to the cloud in order to protect critical systems and data."

Information about product BOMs (bills of materials), routes, components, and alternative supply sources is particularly critical in times of disaster, but PIM (product information management) systems can help in this regard, Cotteleer adds. And the leaner these systems are, the more important the data becomes. Ultimately, organizations that sport flexible, responsible supply chains that are supported by robust, integrated information technology have a significant advantage over those that cannot gather and integrate information from across the supply chain.

"I would add that part of 'robust' in the IT world also includes 'supportable.' If your firm has embarked on a strategy of building unique systems

with few sources of support—for example, 'We gotta find Chuck . . . he is the only one who understands how this system works'—you are probably headed for trouble. Want disaster? Wait until the flood takes out both the data center and Chuck's ability to get into the office," Cotteleer says.

CHOOSE YOUR WEAPON

Because there are multiple technologies available to help businesses protect against supply chain damage, experts suggest performing research to determine the best fit for an environment. Lindenthal recommends first identifying the business needs and requirements with regard to the company's supply chain continuity. For example, what are the events the company needs or wants to plan for and the risks or effects involved with such events? How quickly does the company need to respond?

"Next, a strategy and plan have to be devised on what exactly the company should do to meet these needs and requirements," Lindenthal says. "What components and subsystems may need to be sourced at multiple suppliers? How does the company work with different suppliers across the globe? What design changes need to be implemented? What procedures need to be changed? What systems need to be implemented to support the strategy? Then the company will have to evaluate the different systems available to find the one that can best support the company's supply chain strategy."

Cotteleer adds that businesses don't need to think only in terms of supply chain disruption and disaster, because the same technologies that can help in those situations can help businesses react to unforeseen dips in supply and/or spikes in demand. This mindset, he says, is not so much about a specific, silver-bullet technology as it is about a broad-spectrum responsive capability that's supported by a robust IT infrastructure. ●

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Cloud Computing & Energy Savings

A Green Effect



Key Points.....

Virtualization can help reduce the number of servers in your data center by consolidating loads and improving utilization through cloud computing. By reducing the number of servers in the data center, you can decrease energy consumption for both the servers and cooling of servers.

Automation software can also help you manage energy usage, server efficiency, and workloads, all of which can further reduce energy burdens.

Cloud service providers have the advantage of handling massive amounts of workloads, so there's less hardware downtime for high utilization.

Cloud service providers offer a focus on energy-efficiency, which can make it easy to move to a "green" IT solution.

Cloud computing can help you minimize your company's carbon footprint and manage common power hogs such as servers, storage devices, and the local network. We'll take an in-depth look at how cloud computing can be greener than traditional IT setups.

SHARING IS CARING FOR THE ENVIRONMENT

One of the top means by which cloud computing is so energy efficient virtualization, which allows a single server (or set of servers) to simultaneously manage and distribute resources. For example, in a virtualized workstation environment, each individual workstation is really a virtual machine that's controlled by a master server. The employee can access the virtual machine via the physical computer's Internet connection. The employee's physical computer is often called a "thin client," because it's a simple, affordable PC with limited storage space and processing power. All the hard work is done by the server, which is capable of providing everyone with significant processing power for their tasks.

The Forrester Research (www.forrester.com) "Cloud Computing Helps Accelerate Green IT" report states that "From a resource-efficiency perspective, less equipment is needed to run your workloads, which proactively reduces your space and e-waste footprint." But the benefits don't stop there because when less physical equipment is plugged in, the data center uses less electricity. By consolidating tasks under virtualization, you can cut out underused or old servers and reduce carbon emissions without affecting the productivity of your workforce.

AUTOMATION BENEFITS

Cloud-based services are also beneficial because users can quickly assign and scale data workloads through automation software, further reducing physical infrastructure by maximizing the resources they have at hand. If you



Katherine Broderick

senior research analyst,
servers and data
centers, IDC

"Metrics need to be considered in concert for both internal computing (on-premise) and external computing (off-premise), which could be public cloud, private cloud or traditional IT."

choose to go with a cloud computing provider, it's extremely likely that the provider is doing the same thing with its data center hardware. Katherine Broderick, senior research analyst, servers and data centers for IDC (www.idc.com), says that the five or 10 largest public cloud service providers run data centers for a living. "They fully understand the need for analytics, metrics, and economies of scale," she says.

Automation software can improve resource utilization because it can reduce wasted computer resources by matching the server capacity of an organization (or of a cloud computing provider) with

the actual demand. It can also incorporate both operations and architectural standards, so you can use energy management with virtualization to further increase energy efficiency. For example, you can use the automation software to measure energy use and determine where and when it would be best to allocate workloads—if you plan to use existing equipment to create the cloud environment. There are both energy management and carbon management software tools available to help you reduce the carbon footprint of your IT systems.

Broderick warns that you'll need to consider multiple metrics when analyzing the efficiency of your data center: "Looking at a single metric, such as PUE, utilization, server design, chip type, etc., does not necessarily indicate a 'high-efficiency' data center. The metrics need to be considered in concert for both internal computing (on-premise) and external computing (off-premise), which could be public cloud, private cloud or traditional IT." The Forrester Research report suggests that you

►► Virtualization Concerns

It should be noted that implementing cloud computing and virtualization doesn't automatically mean that your company will save energy. Katherine Broderick, senior research analyst, servers and data centers for IDC, told us "Energy savings depends on how different environments are set up and run vs. the internal IT organization of a given company. For example, the savings depends on if

the cloud service is new to the IT organization or is being swapped out from an internal data center." Broderick adds that "Inside cloud service providers, some look like regular corporate IT departments, others build their own servers and some are really small providers."

If you want to incorporate cloud computing using your company's server infrastructure, there are some steps

you'll need to take to ensure that you're using virtualization in a way that you'll see energy savings. According to Forrester Research, to achieve energy savings status and benefits, 76 to 100% of your company's total server footprint would be virtualized and operating at a minimum of 31 virtual machines per physical host running at an average of 60% CPU utilization or more.



In terms of both resources and energy, cloud computing uses virtualization to help you to use your servers more efficiently.

“Develop targets and goals based on your green IT metrics, and financially incentivize staff to meet them.”

ADVANTAGES OF PAY PER USE

With public cloud computing services, users generally follow a pay-as-you-go subscription plan with a third-party provider to add or remove storage capacity, bandwidth, processing power, or other services. Forrester Research’s report indicates that “The pay-as-you-go nature of cloud-based infrastructure encourages your users to only consume what they need and nothing more.” You can then turn off some resources automatically with things like set expiration times, because employees only consume data when they are at work.

Because employees are only using the energy needed to do the job, no computing resources are wasted to power hardware that’s not in use.

Forrester Research estimates that, on average, as much as 30% of consumed data center energy is used up by “dead” servers, which are classified as servers whose utilization

rate is 3% or less. The 30% mark also doesn’t include energy costs from power distribution and cooling, which is often one to three times the amount of energy used by the server. Most cloud computing providers strive to maintain full workloads, so the money you spend with them may be more likely go toward an environmentally friendly use. For example, the Forrester Research report found that public IaaS (infrastructure as a service) has a sustained virtualized server average of 60% of higher.

MULTITENANCY

Multitenancy is a technology where different organizations (in a public cloud) or different business units of one company (in a private cloud) can share a cloud-based infrastructure to increase efficiency. Sharing a cloud computing service is more energy-efficient because there are fewer peaks and valleys in server demand and automation software in the data center balances all loads among clients. Additionally, large public clouds have the ability to serve millions of users simultaneously, so

they have the advantage of being controlled from a single, expertly designed infrastructure. Many cloud computing providers are also leading in innovation and eco-friendly server and building design. As such, it’s hard for any internal IT staff to compete with a data center with the ability to focus on maximizing energy efficiency.

HOW MUCH CAN YOU SAVE

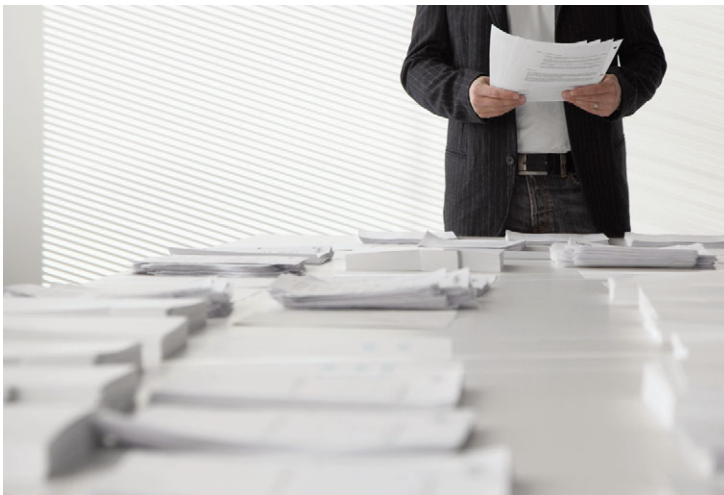
A recent study from Accenture found that of the businesses that choose to run applications in the cloud rather than on their own servers, large enterprises can reduce energy consumption by up to 30%. The Microsoft commissioned study also indicated that cloud computing’s benefits are even better for small businesses, as they could see as much as a 90% reduction in net energy and carbon savings. For SMBs, energy savings could be between 60 and 90%. The reason that savings were typically greater with smaller businesses is because the servers are more likely to operate at low utilization levels as well as at non-optimal temperatures.

MAKE A GREEN CHOICE

By making green IT and cloud computing priorities with your organization’s servers, it’s possible to reach energy-efficiency levels that are close to those of a cloud provider. However, updating your IT infrastructure to work with cloud computing can be a costly venture, if you have yet to invest in any virtualization, automation, and other types of cloud computing software. Cloud computing providers have dedicated resources to adjust capacity and reduce inefficiency, so it’s often easier to go with a cloud computing service when you want to reduce the energy burden on your organization. That being said, you may be able to save money in the long run by investing in cloud computing software now. It’s a good idea to talk with your IT staff about the feasibility of cloud computing and whether a cloud computing service would be best to reduce your organization’s energy usage. ●

Document Management Best Practices

Consider Your Needs Before Choosing An Option



If your office is at all typical, it's filled to the rafters, at least figuratively, with documents.

Both your onsite and remote employees use these documents to collaborate on projects and share information. But all that paper—even if it's the virtual kind, in the form of electronic documents—can become unmanageable. How can you manage your documents in a way that's efficient and lowers bulk, yet maintains accessibility?

The answer, of course, is a DMS (document management system). A DMS is a computer-based system used to track and store electronic documents. Ideally, such a system will keep track of the different versions created by users through processes known as history tracking or version tracking, and it will help reduce redundancy in your documents. Many companies consider a DMS as part of a larger initiative called ECM (enterprise content management).



Jim Joyce

senior vice
president, Xerox

"Effective document management can provide benefits (including) increased productivity and decreased paper usage."

"Document management is one piece of the larger information management landscape that businesses must deal with," says Deepak Bharathan, principal consultant at PA Consulting Group in Washington, D.C. "Finding a supplier for document management services—ranging from the physical storage of yesterday to the point-and-click cloud-based services—has been traditionally simple, but realizing the information outcomes from these services is something that businesses continue to struggle with."

PRODUCTIVITY LOST

According to New York research firm Basex, \$997 billion worth of productivity is lost every year as a result of having to deal with the avalanche of papers, emails, and other forms of content that are circulated daily. Finding a way to consolidate incompatible document archives and streamline paper-based business processes can reduce your business's maintenance costs and help you manage volume and variety of documents produced.

The advantages of judicious document management are plentiful, according to industry sources.

"Effective document management can provide an organization benefits ranging from increased productivity and customer satisfaction to decreased paper usage, decreased spending on printing and storage of documents, and a diminished carbon footprint," says Jim Joyce, a senior vice president at Xerox.

"Using ECM for records management gives an organization quick and easy access to records," says Joyce. He adds that it also provides the ability to monitor policies for expiration and enforce retention of documents according to a records retention schedule.

CONSIDER YOUR OPTIONS

Thanks to the growing use of cloud-based resources, a DMS is now affordable even for most SMBs. When researching your options, consider whether to have your DMS located onsite or at a remote location. An onsite DMS promises that you'll always know where all of your

documents are stored, giving you better control of their security.

The up-front expense involved in an onsite DMS is higher than one built in the cloud, but prices have been decreasing. Several providers offer suites of enterprise-wide quality management software used across a wide range of industries. That said, some research into an onsite DMS can go a long way, according to Heinan Landa, CEO of Rockville, Md.-based Optimal Networks.

"Although onsite document management systems are costly, they are not perfect," says Landa. "In fact, these complex, high-performing systems tend to be temperamental, which means high administration costs. However, for larger companies, the sheer volume of documents processed and the security of the data being shared justify these costs."

Another option to consider is engaging an MPS (managed print service). According to Xerox, an MPS can help your organization save up to 30% on costs associated with the print environment by controlling how and when documents print, reducing print-related power usage and paper consumption, consolidating document devices, and allowing employees to spend less time on document-related tasks.

One key to a successful MPS, Joyce says, is to get employees on board. "End users need to adopt and commit to workflow best practices," he says. "Taking a strategic approach to change management will help support the staff during the transition and ultimately help the organization notice a real difference in costs."

"Managed print services and hosted document management are ideal options for businesses that either don't have in-house resources and expertise, or need to focus these resources on handling tasks that are more core to the business," says James True, vice president of business development at Madison, Ala.-based Cabinet NG.

An onsite DMS solution can be an effective way of taming all those documents. Cloud technology can keep your company from having to buy, install, manage and pay for the upkeep of an individual onsite

system, offering instead the option of subscribing to a full-service, Internet-accessible system. This way, the service provider supplies the software and most of the hardware, while you pay for the DMS packages you need.

"Cloud-based document management systems work well with the onslaught of mobile technology," says Landa. "The same project can be accessed from desktops, laptops, tablets, and smartphones, without the need to juggle files from one device to another. This means important business can be performed whenever and wherever, not just at the office."

FINAL CONSIDERATIONS

However, employing an offsite DMS isn't for everyone. Using a cloud-based DMS means your data is in the hands of another company, on a server you have no control over outside of the ability of managing your own files. If your data is especially valuable, or if there are regulatory concerns about who can potentially have access to your documents, think twice about the cloud.

"This dispersal of information over a wide network of devices is perfect for document backup and recovery but raises concerns regarding document privacy," says Landa. "This is because cloud computing is still a relatively new innovation; while security is being improved as the technology advances, some business users' concern for their sensitive data may outweigh the potential benefits of using a cloud-based document management system."

When considering which path to take in your document management journey, consider that many companies use a hybrid approach, outsourcing hardware and supporting systems to vendors while internally managing business processes related to the use of service output, according to Bharathan. That can mean that the unwieldy job of document management can be easier if it's judiciously spread out.

"Since document management tends to be a distributed function—with everyone from administrative assistants to CEOs using it—no one ends up owning it," he says. ●



Heinan Landa

CEO, Optimal
Networks

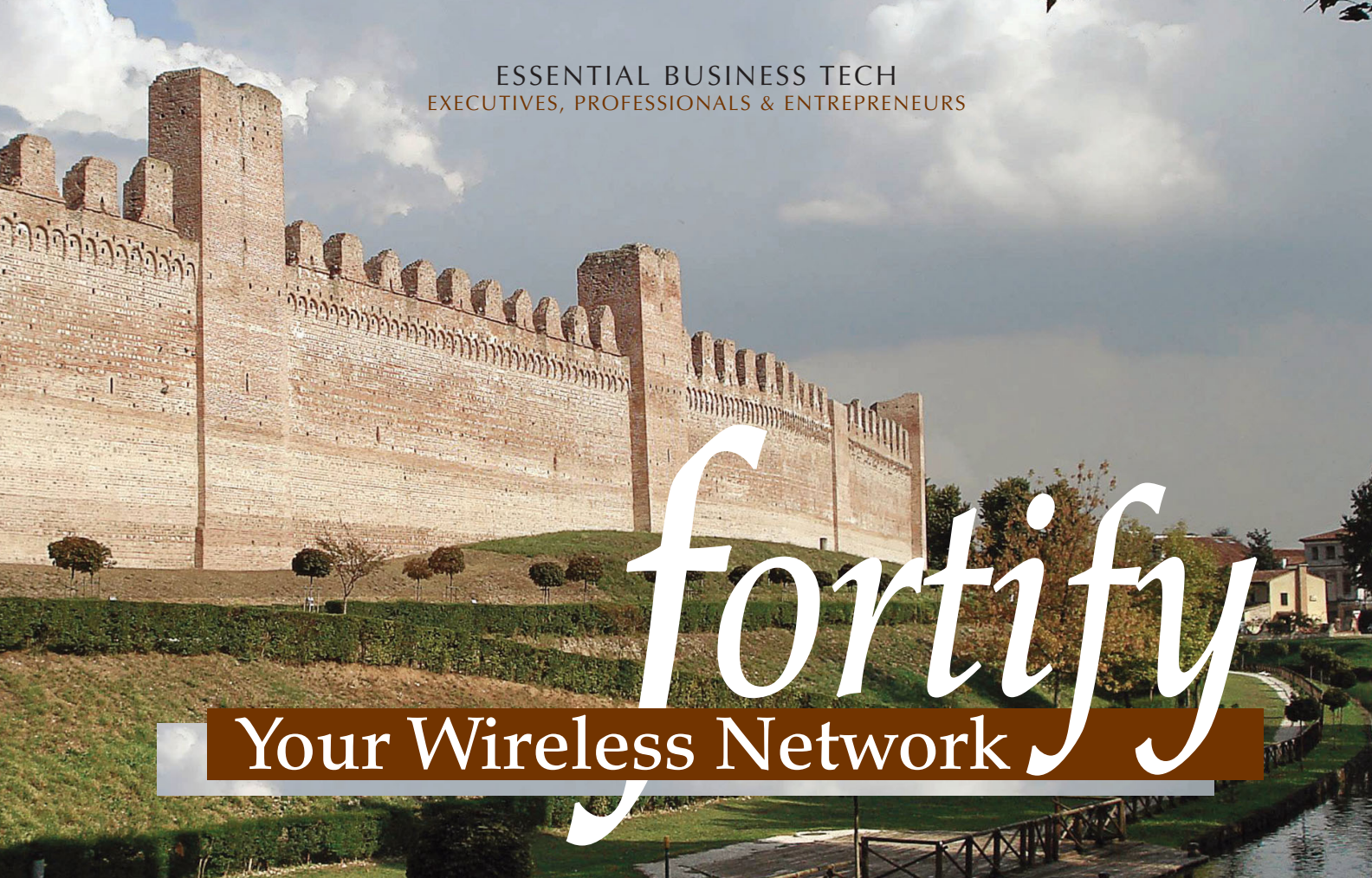
"For larger companies, the sheer volume of documents processed and the security of the data being shared justify the costs."



James True

VP of business
development,
Cabinet NG

"Managed print services and hosted document management are ideal options for businesses that either don't have in-house resources and expertise."



fortify

Your Wireless Network

PRACTICAL STEPS FOR SMBS

Wireless networking is no longer an optional component of business network architecture.

With the increasing popularity of mobile devices, as well as peripherals that support wireless connections, many businesses must either upgrade their existing networks or install new 802.11 (Wi-Fi) components just to keep pace with today's technologies.

The ability to put up a few access points and widely distribute the signal is one of the benefits of a wireless network, but it's also one of its weaknesses. Unlike a wired network, which for the most part keeps its network transmissions contained to the physical cables and devices in the network, a wireless network sends its signal out and about; if not properly secured, anyone can pick up, monitor, and use the signal. For this reason, wireless networks have specific security concerns.

WIRELESS SECURITY BASICS

Securing a wireless network is like creating an onion, if such a thing were possible; you add layers that a

rogue user has to peel back to gain access. The more layers, the tougher and more diverse your protection system. In essence, add enough layers to your onion to make hackers cry "uncle."

Not all of the layers add real security; a competent, determined individual can easily peel back these simple layers. But the layers can prevent casual users from gaining access, and at the same time, make it a bit more difficult for professionals.

The simple layers include renaming the SSID (server set identifier), which is usually thought of as the router's or AP's (access point) name. Many default SSIDs match the name of the router; this gives would-be hackers information about the type of equipment they're trying to access, a significant advantage. When you change the router's name, consider using a name that doesn't include information about your business.

Change the default password for the administration of the AP. Use a random password containing both upper and lower case characters, plus special characters and numbers. Turn off the ability to administer the

access point from the wireless connection; only allow administrative access over the wired network.

Keep Wi-Fi signals contained. It's usually better to use multiple APs, with signal levels turned down, to cover a large area, than to use a single AP with a stronger Wi-Fi signal. Strong Wi-Fi signals can easily be picked up at a distance, letting someone sit comfortably in their car, or even a hotel room across the street, while they try to penetrate your network.

Also, keep your firmware up-to-date and change all passwords and shared keys on a routine basis. Finally, actively review your security measures. Assign someone to review the wireless network logs, looking for intrusions, rogue access points, etc.

GOING FURTHER

"From out of the box, we would immediately recommend changing the SSID and/or make it invisible," says Cat Stormont, marketing and sales manager of Silver Lining Convergence (www.everycloud.eu). "We would also turn on encryption and password-protect the connection. These simple changes can instantly increase the security of a wireless network but sticking with the defaults will leave businesses open to opportunistic attacks."

The type of encryption you choose is important. Avoid older methods, such as WEP (Wired Equivalent Privacy) or WPA (Wi-Fi Protected Access) with TKIP (Temporal Key Integrity Protocol), because both have been defeated. The newer WPA2 (WPA2 Personal or WPA2 Enterprise) is the preferred security system for today's wireless systems. Jay Botelho, director of product management at WildPackets (www.wildpackets.com), suggests that, "For wireless, the primary goal is securing the communications link between the client and the AP, perhaps a few hundred feet max. If employees are only connecting to corporate APs, all you really need to ensure is that the information in the data stream cannot be

sniffed, recorded, and later decrypted by a bad guy. WPA2 Enterprise does that."

WPA2 Enterprise has another advantage over WPA2 Personal, which uses shared keys stored on an employee's computer. WPA2 Enterprise uses an authentication server that can use a company's existing Active Directory server to authenticate a user. This allows users to connect to the wireless network, and it allows the company to control access within the network, thereby restricting content access.

Joel Holcombe, network engineer for SilverFox Broadband (www.silverfoxbroadband.com), and Carl Hirschman, president of SilverFox Broadband, say that using multiple SSIDs can allow both guest and corporate users. "Most enterprise-grade wireless access points can run multiple SSIDs. A business can then set up a different SSID for each user group. For example, they may set up a 'guest' SSID and a 'business' SSID. When setting up multiple SSIDs, you will also want to set up a separate VLAN (virtual local area network) for each one of the SSIDs. A VLAN takes the physical network and segments part of it so that devices on one part of the network can't talk to the other part. It's

like having an open office space, but then deciding that only HR employees can have the key to get into the locked storage area in the back."

Besides using VLANs to segment your network, you can also use the authentication capabilities of WPA2 Enterprise along with an Active or Open Directory server to further control guest access.

When considering what upgrades small businesses should consider, nearly all of the experts we spoke with recommended upgrading equipment to ensure the use of WPA2 Enterprise encryption and authentication services. For most businesses, this would mean either installing hardware/software to create an authentication (RADIUS) server, or the use of cloud-based service to provide authentication.

Pablo Estrada, solution architect at Meraki (www.meraki.com), recommends adding traffic shaping technology. "We often recommend clients use application traffic shaping to throttle recreational traffic on the wireless network. This helps the performance of business-critical applications, such as VoIP and email, and it limits the time users spend using recreational applications.

Many organizations are concerned with possible implications of peer-to-peer applications as well as the impact of heavy use of video and social media applications. Application traffic shaping helps business achieve their goals with a wireless deployment and can enhance productivity for employees."

INTEGRATE YOUR NETWORKS

There are, of course, many additional steps you can take to secure your corporate network, but most of these are common to any network, not just a wireless one. The best advice we can provide is to simply remember that even if you add your wireless networks in an ad hoc fashion, you should consider your networks as one, and integrate them as securely as possible. ●



Jay Botelho

director of product
management,
WildPackets

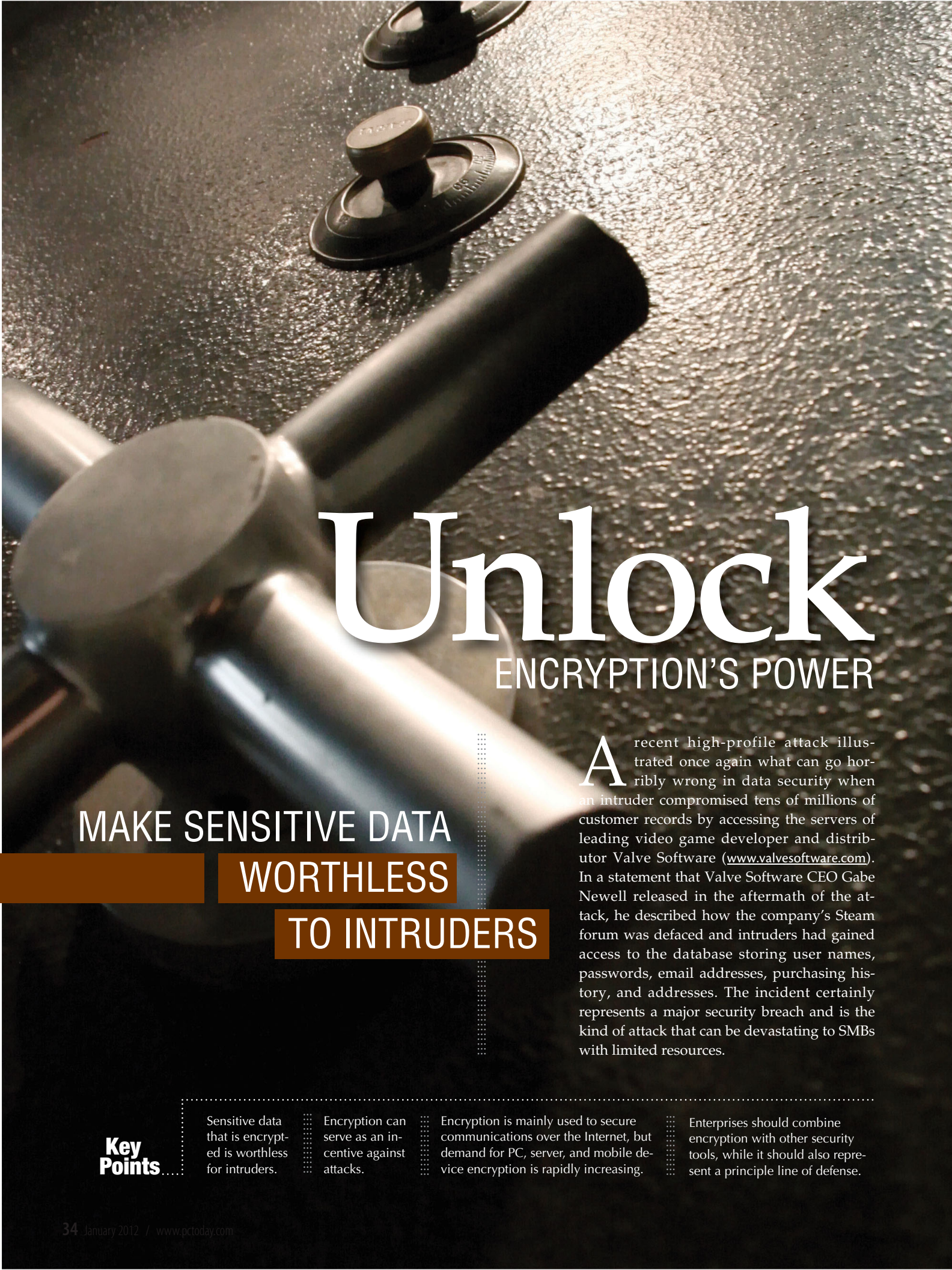
"Even though hiding your network name does not stop a determined predator, it does keep neighboring companies and 'freeloaders' from using your bandwidth."



Carl Hirschman

president, SilverFox
Broadband

"Security is an ever-evolving thing, and you don't want to be caught running a standard that hasn't been used in a while or does not address new security threats as they arise."



Unlock

ENCRYPTION'S POWER

MAKE SENSITIVE DATA
WORTHLESS
TO INTRUDERS

A recent high-profile attack illustrated once again what can go horribly wrong in data security when an intruder compromised tens of millions of customer records by accessing the servers of leading video game developer and distributor Valve Software (www.valvesoftware.com). In a statement that Valve Software CEO Gabe Newell released in the aftermath of the attack, he described how the company's Steam forum was defaced and intruders had gained access to the database storing user names, passwords, email addresses, purchasing history, and addresses. The incident certainly represents a major security breach and is the kind of attack that can be devastating to SMBs with limited resources.

Key Points.....

Sensitive data that is encrypted is worthless for intruders.

Encryption can serve as an incentive against attacks.

Encryption is mainly used to secure communications over the Internet, but demand for PC, server, and mobile device encryption is rapidly increasing.

Enterprises should combine encryption with other security tools, while it should also represent a principle line of defense.

However, there was one crucial piece of information about the Valve security breach that press reports either ignored or did not notice: Valve customers' credit card information was encrypted on the server. This means that any encrypted credit card data the intruder (or group of intruders) may have stolen was not only unreadable but was useless without the key to decrypt it.

The incident offers the perfect case study to demonstrate how SMBs can use encryption to make their data safer, especially for the storage of customer records and other sensitive information.

ENCRYPTION AS STATUS QUO

"In the future, the default state of data is going to be encrypted. Encryption is going to be the most important tool against cybercrime by devaluing the data," says John Kindervag, a principal analyst for Forrester Research (www.forrester.com). "By encrypting it, we are eliminating the value and are thereby eliminating the incentive for attackers who try to steal data. And even if they get it, it has no value for them [since it is encrypted]."

Encrypting sensitive data is also one way in which enterprises can remain compliant. "Laws and regulations generally say that if you lose data that pertains to customers, then you have to notify them unless that data was encrypted," says Ramon Krikken, an analyst for Gartner (www.gartner.com). "The 'unless that data was unencrypted' clause provides a get-out-of-jail free card."

A growing number vendors is offering solutions for hard drives, portable storage devices, notebooks, and smartphones as enterprises increasingly realize the importance of protecting their data with encryption. Reflecting the acceptance of encryption among enterprises as a crucial security component, demand for the use of the technology to protect electronic data is expected to rapidly increase

during the next few years. According to IDC (www.idc.com), the worldwide market for encryption-related products will almost double to \$979 million in 2015 from \$532 million in 2009.

SMBs may have avoided using encryption protection in the past given the lack of available offerings and options. Some may have hesitated to put locks on their data, which would be blocked if they happened to lose the key required to decrypt the data. However, with an increase in the range of options available, SMBs will likely find a fit for encryption somewhere in their IT infrastructure as a means to lock away sensitive and important data in a virtual vault.

ENCRYPTION TODAY

Today, encryption is widely used in communication applications as a way to secure data that is transferred across the Internet. Most users have encountered encrypted communications when accessing their bank accounts online, purchasing items from e-commerce sites, or using webmail applications. These connections have URLs that begin with "https," which indicates they are encrypted with the TLS (Transport Layer Security) or SSL (Secure Sockets Layer) encryption protocols. These protocols prevent users who don't have access to the decryption keys from intercepting the data.

SMBs almost invariably use encryption to secure communications between their servers and customers as a standard security practice and to meet compliance regulations if they sell products or services directly over the Internet. But besides using encryption to protect e-commerce transactions, enterprises can make use of the



John Kindervag
principal analyst,
Forrester Research

"In the future, the default state of data is going to be encrypted. Encryption is going to be the most important tool against cybercrime by devaluing the data."

technology in several other ways. Sensitive data stored on servers, such as customer credit card information, is a good candidate for encryption, which the Valve Software security breach case illustrates. Email communications should be encrypted, whether the server is managed onsite or by a cloud provider.

For data protection that's geared more toward end users, encryption can create secure data vaults on smartphones, laptops, PCs, or USB drives in order to protect data in the event that a device falls into the wrong hands.

SMBs seeking accessible yet scaled-down ways to use encryption for these types of devices might try products that anti-malware providers offer. Other options include TrueCrypt, an open source platform, or Microsoft's BitLocker Windows (www.microsoft.com), which comes with certain editions of Windows Vista/7.

TrueCrypt (www.truecrypt.org) is free to download and use for encrypting storage volumes, whether they be stored in PCs, laptops, smartphones, USB drives, or other devices. By contrast, BitLocker targets Windows PCs but can be used for servers running Windows Server 2008/2008 R2 as well. With both BitLocker and TrueCrypt, the user creates an encrypted volume on the storage media and accesses the key that unlocks the protected disk volumes with a password.

Microsoft's and TrueCrypt's lack some of the features that enterprise-class solutions offer, such as network-authentication or remote monitoring features. However, they can allow SMBs to experiment with how encryption works before fully

implementing it throughout the enterprise.

ENTER SELF-ENCRYPTING DRIVES

Most encryption is done with software, but that is likely to change in the future if analyst forecasts prove to be correct and self-encrypting drives become standard in PCs and mobile devices. "It will only be a matter of time before all hard drives are self-encrypted," Krikken says. "It is more expensive for [drive makers] to manufacture, but it will eventually be a self-enforcing cycle since all hard drives will become self-encrypted or have that feature. Encryption as an [add-on feature that comes with drives] is already cheaper [than software solutions] to buy."

Self-encrypting drives can offer data protection in two ways. First, the data simply cannot be accessed when the drive is removed. Also, all data in the drive is encrypted with AES (Advanced Encryption Standard)-level encryption when the device is powered off, so users must log in to access the operating system or any other data on the drive during the boot-up process. The drives are especially useful in case of loss or theft, which renders the data unreadable for thieves who do not have the encryption key.

When PCs or servers need to be recycled and the hard drives must be wiped clean in order to meet compliance regulations, self-encrypting drives can make the data-wiping process easier and less expensive. Doing that usually requires expensive services to ensure that all data has been removed from the drives, which only a third-party specialist can provide in most cases. However, self-encrypting drives can replace the disk-wiping task, since the data is encrypted once it is removed, which also usually meets compliance regulations.



Ramon Krikken

analyst,
Gartner

"Laws and regulations generally say that if you lose data that pertains to customers, then you have to notify them unless that data was encrypted."



Amichai Shulman

co-founder
and CTO, Imperva

"The moment you take a self-encrypting drive out of a server, workstation, or laptop; it erases the key and the data is [inaccessible]."

"The moment you take a self-encrypting drive out of a server, workstation, or laptop; it erases the key and the data is [inaccessible]," says Amichai Shulman, co-founder and CTO of Imperva (www.imperva.com). "Instead of taking a day to wipe a drive, encryption replaces the need [to remove data from the media] altogether."

When opting to adopt either self-encrypting drives or a software solution for servers or workstations, it is important to consult with the vendor to determine the solution that works best, Kindervag says. "A lot of people try to build their own stuff, but it doesn't work. You've got to go to the vendor for a key-management solution. The vendor will usually have somebody that they partner with."

ONE PIECE OF THE PUZZLE

While encryption represents a very powerful security tool, it has its limits. One way to look at encryption is to consider it as a safe; the best combination in the world will certainly prevent thieves from opening the vault, but the problem is that it must be periodically opened

to access what is inside, which poses a risk. Likewise, in the electronic-data security world, it is sometimes necessary to open the encryption data vault, thus decrypting the information inside and making it temporarily vulnerable.

Password management is also a huge issue. Whether it is a 128-, 192-, or 256-bit version, a server's or laptop's AES-powered encryption is essentially worthless when a weak password makes it easy for a hacker to find the password in a few minutes with the right software.

"How exactly long passwords need to be depends on the encryption system and how well you want it to resist password attack, but longer is better, and passphrases (multiple words) are longer and easier to remember than passwords are," Krikken says.

Applications or programming code that allows one to circumvent the encrypted barrier are particularly dangerous for database servers. "If you encrypt specific fields in the database and you have many people using an application that decrypts the data, and a hacker gains access to the application, then the encryption is useless," Shulman says.

Without detailing all of the different security layers and processes enterprises need to use between firewalls, intrusion-detection systems, monitoring, and anti-malware applications, encryption should represent only one line of defense for data protection, although it is a very important one.

"People say that if data needs to be protected, then they say use encryption. But people put on blinders since it is often looked upon as a primary solution to protect confidentiality of information, which is short-sighted," Krikken says. "Encryption is a very important part of your control portfolio, but by itself, it is very limiting." ●



Improve Your Company's Web Presence

Best Buy For Business™ Web Services Can Help

Best Buy For Business recently added website development, hosting, and marketing to its extensive catalog of business-focused products. Best Buy For Business Web Services (bestbuybusinessweb.com) gives small businesses the option of either building their own websites using the many available tools or having a Best Buy® professional design it for them. Then, Best Buy will host the website. It's all part of the BBFB goal of helping businesses reach and retain customers.

"Best Buy For Business can help small companies use the Web to grow their business, without the need for additional staff, hardware or software, for a single monthly fee," says Scott Mosley, BBFB strategic development manager. "Our goal in Best Buy For Business is to support our customers wherever they need us," adds Mosley. "As they look for different ways to reach their customers, we want to be there with solutions to help them expand their business."

YOU BUILD IT

Best Buy Web Services include two basic plans, both customizable. The You Build It plans let you use a site builder with more than 1,600 templates from which to choose, as well as other tools

to design and manage your own website. The You Build It plans also feature mobile-optimized websites that can be viewed on devices such as smartphones and tablets. Other features include email marketing, e-commerce, and search engine promotion tools and Web traffic statistics so you can increase the visibility of your website and track how many users are visiting it. You Build It

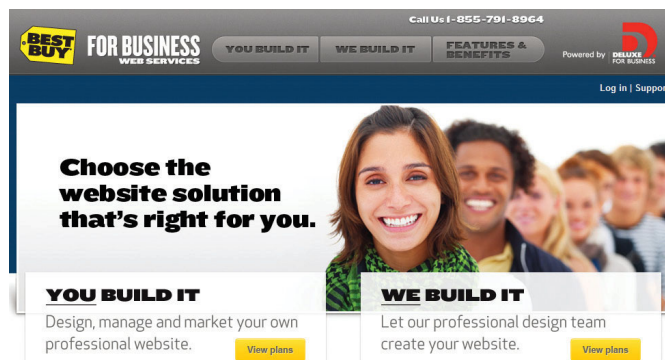
choose, you'll have access to a professional copywriter who will edit your website's content and make sure it's easy to read for potential customers.

If you decide to invest in one of the more advanced plans, you'll unlock features such as logo design, in-depth social media tools, and a newsletter creator. We Build It plans range from \$99.99 to \$179.99 per month, depending on data amounts, email accounts, total Web pages, and other factors.

As an added benefit, some options include marketing services designed to help your company's website reach the best possible potential customers on search engines and social media. "The online marketing services help businesses show up at the right time for their customers, on the right search engine, and in front of the right prospects," says Lisa Hayes, BBFB cloud strategy manager.

TOOLS TO HELP YOU GROW

Both plans include hosted email accounts, collaboration tools, additional maintenance services, and more. E-commerce tools let you sell items online, or you can sit back and let BBFB manage a Web store for your company. Regardless of what your company's Web presence requires, Best Buy For Business Web Services has something for you. ●

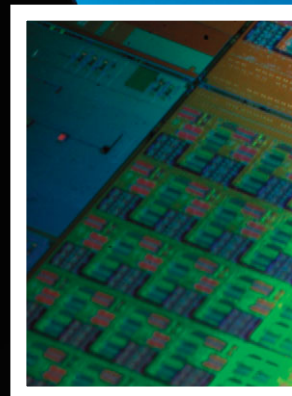


options, named Do-It-Yourself and Do-It-Yourself Plus, are available for \$9.99 and \$14.99 per month, respectively. Each plan permits specific amounts of data traffic, including website storage and Web transfer.

WE BUILD IT

The We Build It plans provide you with up to 10 customized Web pages (depending on the specific plan), which are all designed by a professional site builder. We Build It is designed for companies that want the highest quality website without the hassle. No matter which plan you

Sandia researcher Greg Nielson examines a sample of his group's "glitter" photovoltaic cells. Sandia estimates that this nanoscale tech could cut the price of watt-peak solar power in half, or more.



Tiny Endeavors

The Latest In Nanotech Innovations

At some point soon, the phrase "nanotech innovation" will seem redundant. Particularly in the technology and materials fields, where can one turn and not be overwhelmed by a wave of R&D happening at the molecular and even atomic levels? Ever since Richard Feynman's groundbreaking 1959 lecture, "There's Plenty of Room at the Bottom," sparked snowballing interest in nanomaterials and nano-scale (100 microns or less) production, the benefits of nanotechnology for macro-scale business have been mounting.

NEWEST DEVELOPMENTS

Over the past year alone, Swiss firm Imina Technologies demonstrated its

miCube robots—remote controlled workers the size of a sugar cube able to manipulate objects as small as a biological cell or semiconductor. Sandia National Laboratories is now investigating how to put its "glitter-sized" solar cell technology into production at the utility level. Sandia's photovoltaic cells are only two microns thick but can already yield 20% efficiency, which is far better than today's average panel efficiency of about 12%.

Dow Chemical teamed with the Department of Energy to launch one of many advanced materials R&D projects that will leverage nanotechnology to hopefully yield breakthroughs in battery storage. (Just recently, Stanford researchers an-

nounced a breakthrough nano-driven technique that would let batteries withstand 40,000 charge/discharge cycles—a massive advance over today's 400 cycles for lithium-ion cells.) And in October, AMD demonstrated its latest Fusion Accelerated Processing Unit (the next-gen CPU/GPU hybrid design) on a 28nm (nanometer) fabrication node. As a point of reference, AMD's current quad-core "Llano" APU uses 32nm production and packs 1.45 billion transistors into a 228mm² package. The newer fab node will let AMD roughly double the number of transistors in its next-gen chips and scale performance accordingly.

The nanotech advances AMD uses to pack millions more transistors into the same CPU package are similar to those Intel and Micron use to pack more memory cells into the same physical volume of flash memory. In many cases, the silicon manufacturing involves using a process called

immersion lithography, wherein water is used to refract light from a lens onto the silicon wafer's surface. This is needed because the regular wavelength of ultraviolet light used in semiconductor manufacturing is too long for the feature density and performance enhancement demanded today.

"Advances in nanoscale lithography have now taken us to 20nm production, yielding NAND [flash

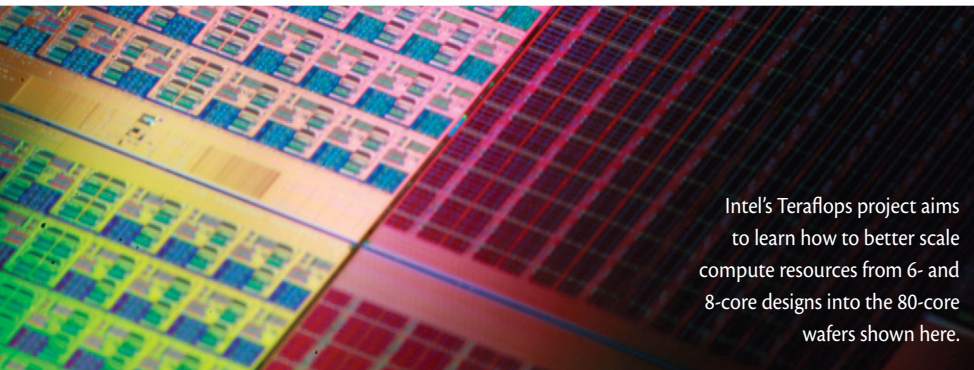
multiple cores within a single CPU package. (Taking this to something of an extreme for research purposes, Intel demonstrated an 80-core, 65W processor back in 2007.) But to take advantage of these burgeoning processor capabilities, software developers have had to redesign their applications to utilize all of the CPU's (and GPU's) threads, which can be processed in multiple data streams in parallel.

be slipping. Data from Lux Research (www.luxresearchinc.com) last year showed that the U.S. poured \$2.5 billion into nanotech funding and new patents in 2009, but the commercial and economic payoff from this investment, dollar for dollar, now lags rivals in Japan, Germany, South Korea, and Taiwan. This trend is exacerbated by the "significantly lower" relative number of science and engineering graduates in America compared to other countries. David Hwang, analyst at Lux Research, notes that this may impact long-term U.S. competitiveness.

If Hwang is right, a country's commitment to nanotechnology may well dictate its economic future. Fortunately, the ROI of nanotechnology can speak for itself. Sandia National Laboratories, for example, spent roughly \$300 million in California on research during 2010, much of it nanotech-related. Sandia then went on to detail how these efforts resulted in nearly \$1 billion of economic output for the state. Nanotechnology has the ability not only to help businesses but to create them.

For most of us, though, nanotechnology will be a means through which we achieve ever greater levels of productivity, profit, convenience, and enjoyment. As nanoscale innovations enable higher levels of global data storage and deeper capacities for analytics, the world of business itself will struggle to keep pace with so many emerging capabilities.

"The big change from nanotech in computing will likely be more intelligent applications," says Enderle. "By processing lots of data streams at once, a system should be able to approach a higher level of intelligence than is currently possible. We'll see improvements in system flexibility and improved information quality as a result. Continuing forward, this may become the foundation for cognitive computing, thought to be the next big breakthrough on how computers work, that will allow computers to approach and someday exceed the capabilities of humans." ●



Intel's Teraflops project aims to learn how to better scale compute resources from 6- and 8-core designs into the 80-core wafers shown here.

memory] chips with an 8GB storage density," says Troy Winslow, director of product marketing, Intel Non-Volatile Memory Solutions Group (www.intel.com). "From these, we get drives of up to 600GB. These SSDs increase productivity by improving PC responsiveness up to 56% over traditional hard drive-based systems. Workers' PCs boot up faster, multitask more effectively, and complete intensive computing tasks such as CAD and Photoshop in a fraction of the time. In servers and the data center, these SSD advances increase performance up to 100X over hard drives, speeding up access to data, transaction processing, and Web search response while reducing total cost of ownership and storage power consumption by up to 98%."

In the computing world, magnitude increases in hardware capability often yield corresponding advances in software. For example, by continually shrinking fab processes into ever smaller nanoscale realms, CPU manufacturers have been able to create

According to Rob Enderle, principle analyst at Enderle Group (www.enderlegroup.com), the rise of parallel processing allows applications to accomplish more at lower power. "As you increase processor speed," says Enderle, "you get diminishing performance returns due to inefficiencies, and the energy requirements become non-linear. Heat starts to approach that of the surface of the sun, and it's unmanageable. Nanoscale technology coupled with a shift to parallel processing allowed for the continued increases in performance that businesses require by sidestepping the heat, energy, and performance problems that had caused traditional approaches to increasing speed to hit a wall."

A SMALL FUTURE

The impact of nanotechnology on modern business can't be overstated, and all trends indicate that the future significance of nanotech will dwarf anything we've seen to date. Thus it's doubly troublesome that America's position as a leader in this space may



Find The Perfect Display

A BUYING GUIDE

Monitors are just as important to your overall computer setup as any other component. After all, without a monitor, a computer is just a box with a lot of sophisticated parts inside. To give your employees what they need and make a solid investment, you have to learn about the multiple monitor types available. And while there are a lot of monitor features that don't pertain to business use, we'll focus solely on the ones that do and help you find the best possible monitors for your workforce.

SCREEN SIZE & DISPLAY TYPE

The first two aspects of a monitor to consider are the screen size and the display technology. The screen size you choose depends on what types of applications you plan to run and how

you want to use your monitors in the long run. For instance, a 17- to 22-inch screen should be fine for employees who use their computers to exchange emails and perform other basic tasks. But graphic designers, video editors, and other workers who use visually intensive software or deal with HD graphics and videos may need something bigger, such as a 27-inch screen. Also, if you plan on frequent video-conferencing, you may opt for a larger screen size or even use a larger flat-screen TV as a monitor (provided it has the necessary compatible inputs).

Samsung's E1920X, 19-inch Business LCD Monitor (\$149.99; www.samsung.com) is a relatively simple model but is still packed with features. It has Magic Eco for adjusting brightness levels, Magic Return for use in a multi-monitor

setup, and Magic Angle for improved viewing angles.

Next, you should decide what type of display technology you want, which also depends on what the monitor will be used for. The most common types are LCD (liquid crystal display), LED (light-emitting diode), and IPS (in-plane switching). LCD monitors provide solid image quality and are often quite a bit cheaper than their LED counterparts. LED technology uses a different form of backlighting than LCD monitors, which tends to make them clearer and brighter. IPS technology can be included in LCDs and LEDs to provide a wider viewing angle, which makes it easier for multiple people to work around the same monitor.

LG's E2370V-BF (\$279; www.lg.com) is an example of a monitor with IPS

technology built in. It also has a 23-inch screen and SUPER LED backlighting. It features picture in picture multitasking, so you can watch a presentation and take notes at the same time.

DISPLAY SPECS

The most important monitor specifications are screen resolution, contrast ratio, and HD capabilities. If possible, choose a screen resolution that is the best possible resolution your computer's video card can handle. If everyone in the company is using the same computer model, you can invest in multiple units of the same monitor model so everyone has a matching resolution. If various departments are using different systems, then you'll have to evaluate on a case-by-case basis. Your company's IT department will be able to tell you what monitor resolutions will work best for your specific computers.

The importance of contrast ratio correlates to the individual tasks of your employees. Contrast ratio determines overall detail and deals with color. Common contrast ratios range from 1,000:1 or lower all the way up to 5,000,000:1 or higher. But beware, because the higher contrast ratios are often dynamic, which means they are the typical ratio you should expect. This mostly makes a difference for video editors, graphic designers, and those holding similar positions.

HD support is another feature to look into. Some monitors support full 1080p HD video, which makes them similar to HDTVs. Combined with a high resolution and contrast ratio, HD compatibility can improve on-screen image clarity and videoconferencing quality.

CONNECTION TYPES

The last basic feature to look at is connection options. The most common types of inputs are DVI, D-Sub, HDMI, and the analog VGA. Many computers have multiple output types, so it really depends on your preference and what connections your desktop supports. Note that HDMI cables provide the highest possible video quality available and full 1080p HD.

The LG E2241V-BN (\$189) is a 22-inch monitor that features a resolution of 1,920 x 1,080, a 5,000,000:1 dynamic contrast ratio, as well as support for 1080p HD video. It also offers a good variety of connection types with one input each for D-Sub, HDMI, and DVI-D.

OTHER FEATURES

After you decide the basic monitor features your company needs, it's time to look at a few extra ones that aren't necessarily crucial, but provide additional functionality that can make a monitor even better. For instance, some monitors are wall-mountable. If you want to dedicate one to your

videoconferencing room, you can put it up on the wall for the best possible viewing angle. Some monitors are designed with anti-glare displays, so you don't have to worry about fluorescent light or the sun's reflection affecting display quality or causing eye strain. And for companies seeking green solutions, many reduced power-consumption monitors are available.

Samsung's C27A650X 27-inch Central Station Business LED Monitor (\$599) is a full HD, LED monitor with multiple special features. But the most interesting feature is its wireless functionality; with the built-in docking station, you can connect your laptop to it without using a cable. In an office setting, you could put this monitor in a conference room and let people wirelessly connect their laptop to give presentations.

SO MANY CHOICES

It may seem overwhelming at first to see the wide variety of monitor options available with seemingly more features to keep track of than humanly possible. The simplest way to manage it all is to take the needs of your employees into account and go from there. With a clear vision and knowledge of the most important aspects of monitors, you should be able to easily find the perfect monitors for your workforce. ●

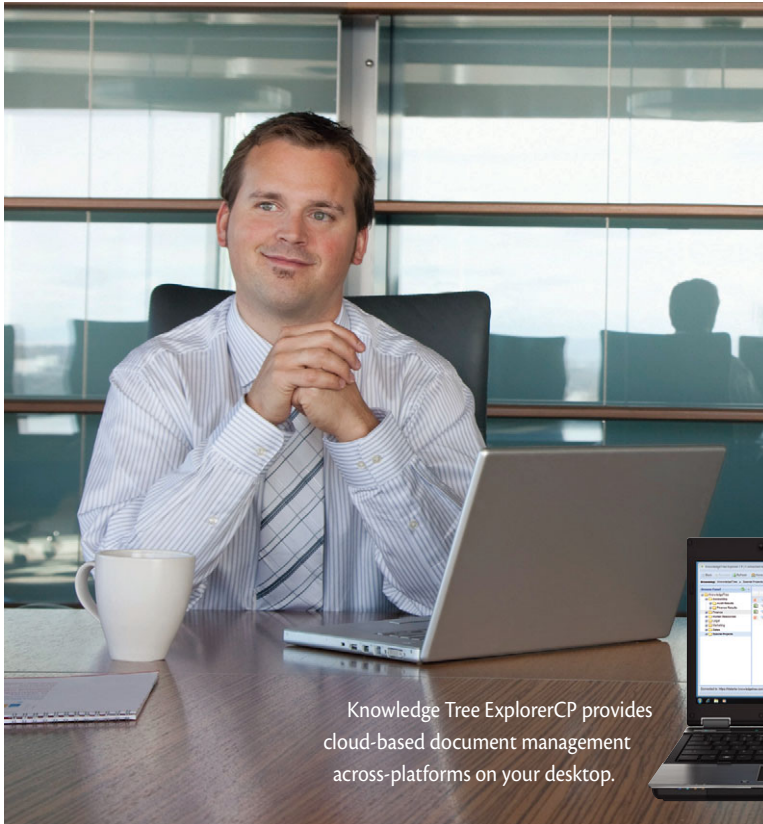


① The Samsung C27A650X LED monitor has a wireless docking station built into it, so you can quickly and easily connect laptops and other devices on the fly.

② Samsung's 19-inch LCD monitor is designed specifically for business and is a less expensive alternative to similarly sized LED monitors.

③ LG's 22-inch LED monitor supports full HD video, a high contrast ratio, and a variety of inputs for connection to almost any tower or laptop.

④ The E2370V-BF features IPS technology for great viewing angles as well as multitasking support to help employees be more productive.



Knowledge Tree ExplorerCP provides cloud-based document management across-platforms on your desktop.

Business Software

The Latest Releases & Updates

When you keep on top of new and updated business software, you can learn about ways you can enhance your business by upgrading or adding to your technology solutions. Our coverage of the latest releases and updates in the world of business software includes products that can help you manage your documents, security, and sales. We also have information about new releases for online survey creation, desktop publishing, and CRM (Customer Relationship Management) software.

To help you zero in on what's new, here's our latest roundup of business software releases and updates.

KASPERSKY ENDPOINT SECURITY 8

Kaspersky Lab (usa.kaspersky.com) announced the release of Kaspersky Endpoint Security 8 for Windows and Kaspersky Security Center. The new endpoint protection solution and comprehensive management console are designed to keep businesses ahead of emerging threats. Updates include a new antivirus engine that uses improved pattern-based signature technology and a new system watcher module that monitors program activities for malicious behavior. The new release also features application control and whitelisting, endpoint control for individual device access privileges, and Web filtering to block malicious Web sites and content. Kaspersky Endpoint Security 8 integrates with the Kaspersky Security Network, which is a cloud-based database that gathers and exchanges security threat information.

KNOWLEDGETREE EXPLORERCP

KnowledgeTree (www.knowledgetree.com), a provider of cloud-based document management solutions, released KnowledgeTree ExplorerCP. The cross-platform desktop tool for Microsoft Windows, Apple OS X, and Linux operating systems offers an intuitive desktop interface to the KnowledgeTree cloud document management service. It provides access to document management tools to edit metadata, manage approval workflows, and preview documents. You can also

edit and update multiple files simultaneously, unlike Web-only tools, and open a document in its associated productivity application.

SUTISURVEY 2.1

SutiSoft (www.sutisoft.com) released SutiSurvey 2.1, an online survey and feedback solution. The Web-based application lets user create, distribute, and manage online surveys. You can create surveys from scratch use existing templates or upload content from Word or in XML format. SutiSurvey 2.1 features more than 30 built-in and customizable question types, question skipping and piping logic, and the ability to publish the survey to email and/or a widget on your Web site. You can also define survey recipients, limit the number of responses allowed for a survey, generate customizable reports, and export reports to other file formats.

SMART FORM TOOLKIT ENHANCEMENT

To Doc-Link 2.7 Altec Products (www.altec-inc.com) recently released its doc-link Smart Form Toolkit, which is an enhancement to doc-link 2.7 for SMBs. doc-link is an integrated, scalable document management solution for capturing documents and automating business processes. The Smart Form Toolkit add-on provides the ability to create and configure customizable electronic smart forms, which are accessed from the doc-link Smart Client. Businesses can use the customizable doc-link windows to create, index, and retrieve documents. The toolkit also

supports custom structuring of business processes to reduce data entry and processing time.

CREATOR PROFESSIONAL 8.5

MultiAd (www.multiad.com) announced a new release of its desktop publishing software Creator Professional 8.5, which contains numerous upgrades and enhancements. MultiAd has completely rewritten the graphic engine for Creator Professional 8.5, providing a variety of new features such as soft shadows that output in CMYK and more flexibility in file formats. Other key improvements include support for Adobe Photoshop and PNG images with transparencies, a border editor with custom border creation, copy/paste and find/replace elements with specific attributes, and OpenType font features. It also offers a drag-and-click tool for measuring distance, point locations, and the angle between any two points. Automatic CMYK-RGB conversions will adjust for the intended output, and additional shortcuts and feature options improve productivity.

REDHORSE CRM

Enhanced business analytics are now available with RedHorse Systems' upgraded RedHorse CRM (www.redhorse systems.com) that contains new dashboard features that provide snapshots of what is doing well and what needs attention. The feature includes drill-down capabilities to provide details about the information presented. The customizable dashboard can display analytical information for any data in

the database. The upgrade also adds flexibility to automated workflows, now permitting modifications to strategies already underway and entry into a business process at multiple points. Using SQL Express (free), RedHorse CRM offers a range of automatic workflow functions, using an independent workflow engine/manager to permit continuous operation even if RedHorse is not running. RedHorse on-premises CRM is an alternative to cloud-based systems, where ownership of data is sometimes an issue. It integrates with a number of business applications, such as QuickBooks and Microsoft Outlook.

QUOTEWERKS VERSION 4.7

Aspire Technologies (www.quotewerks.com/aspire) released an updated version of its QuoteWerks sales quoting and proposal software. QuoteWerks 4.7 offers enhancements to product selection, quote delivery, customer acceptance, payment receipt, purchasing, and invoicing. The QuoteValet component, which is an online acceptance and delivery tool, adds payment processing and support for more than 80 credit card payment gateways. The optional QuoteWerks Etilize 2.0 plug-in offers a redesigned interface and adds support for UK customers. The QuoteWerks Real-Time module adds tax rate lookup, including breakdown by state, county, city, and additional taxes. New QuickBooks functionality completes the purchasing and payment workflow to create purchase orders from QuoteWerks and handle payments received through QuoteValet. ●



SutiSurvey includes graphical reporting options for survey results.



RedHorse CRM software integrates with Microsoft Outlook's calendar, contacts, and email features.



QuoteWerks offers templates for invoices and other sales-related documents.

Greenovations

Energy-Conscious Tech

The electronic devices that make our lives easier also produce some unwanted side-effects on the environment. Fortunately, many consumer electronics manufacturers and businesses are working to create products that keep us productive while reducing energy demands to lessen our impact on the environment. Here, we take a look at the newest environmentally friendly technology initiatives.



OPEN COMPUTE PROJECT

This project was started at Facebook in its Prineville, Ore., datacenter with the goal of building the most efficient computing infrastructure. It began with the creation of custom software, servers, and data center hardware to maximize mechanical performance, as well as thermal and electrical efficiency. Now, the Open Compute Project is providing access to its designs so others can benefit. Additionally, many technology companies, including AMD, Asus, Dell, and Intel, have opted to help with designs to further the computing efficiency. Top software companies, such as Cloudera, Future Facilities, and Red Hat, have also pitched in. The Open Compute Project indicates that its Prineville data center is 38% more efficient and 24% less expensive to build and run than Facebook's other state-of-the-art data centers.

INCREASE WINDOWS 7 BATTERY LIFE

TuneUp released its TuneUp Utilities 2012, which is a suite of optimization utilities designed to improve PC performance. In the 2012 edition, TuneUp has added a TuneUp Economy Mode that improves the battery life of Windows 7-based notebooks, netbooks, and tablet computers by as much as 30%. The Economy Mode feature shuts off processes that aren't required for current use and reduces the power to built-in and connected devices. Another new feature is the TuneUp Program Deactivator, which eliminates programs that continue to run in the background, even if you haven't used them in a while, which can result in a significant speed boost for your PC. The TuneUp Utilities 2012 application can also clean your hard drive, restore deleted files, securely wipe data, troubleshoot your PC, and customize your system.

WHITE PAPER FOR EVALUATING POWER CONVERSION EFFICIENCY

The CSCI (Climate Savers Computing Initiative) will be releasing a series of white papers addressing the different aspects of energy consumption within network equipment. The first white paper topic deals with selecting the best power supply. The report notes that networking equipment power supplies are different from servers because networking hardware may be run from loads of 3% to 100% at given times. The lack of a consistent load means that a power supply would need power management tools to optimize efficiency. The CSCI concludes in the white paper that "Networking equipment represents

a significant opportunity for reducing the total consumed energy in both data centers and office environments.” And the individual power conversion components could be a powerful way to reduce total energy consumption.

VERIZON CONNECTED HOME

Verizon officially released its Home Monitoring And Controls service, which lets you use your smartphone or PC to monitor your home’s thermostat, determine whether you left any lights turned on (and shut them off); lock and unlock your door, and monitor energy usage. The service costs \$9.99 per month and can be paired with a monitoring kit (the complete Home Monitoring And Control Kit costs \$219.99) that can help you to easily automate your home or small business. You can set the service to alert you to event notifications, such as when someone changes the thermostat or unlocks a door.

INSULATING GLASS

Southwall Technologies has created a new type of insulating glass, called Quad-Cavity R20, which has an R20 insulating value that’s the same weight as standard dual-pane insulating glass. The window features Heat Mirror technology with a “quad-cavity” that uses the heat from the sun to achieve a net energy gain, so the window admits more heat than is lost through cold air conduction. The Quad-Cavity R20 window features three Heat Mirror films within the window to create four insulating air spaces. The Quad-Cavity window meets a 0.05 center of glass U-factor and 0.09 full unit U-factor to meet the standard found in commercial fixed fiberglass windows.

NEW ENERGY MONITORING SYSTEM FOR SMALL BUSINESSES

Powerhouse Dynamics’ eMonitor c-Series system helps small facilities, such as retailers or restaurants, decrease their electricity use by nearly 20% through

NEW ENERGY-EFFICIENT DISPLAY TECHNOLOGY

Prysm is a digital display manufacturer that has patented LPD (Laser Phosphor Display) technology to create large-scale video displays that use low amounts of power. For example, Prysm indicates that its 225-inch display consumes less power than a consumer hair dryer, which is around 70% less energy than popular alternative large-scale displays. The low-power consumption design also gives you the freedom to plug a big screen display into a standard power outlet, and there’s no need for additional, expensive cooling features for the display. Prysm hopes to bring the LPD technology to retail establishments, broadcast studios, sports venues, and company board rooms, as well as other large-scale display markets. LPD technology also supports new and upcoming features, such as touchscreen, gesture control, and proximity detection.



centralized monitoring. The eMonitor c-Series control system provides real-time and historical electricity usage, and it can help you pinpoint major contributors. eMonitor can provide you with remote control capabilities for your HVAC system from a smartphone or PC. The built-in benchmark tools within eMonitor c-Series can provide facilities information down to the equipment level. The system can also send out alerts when something is out of the ordinary, such as if energy usage is high during non-work hours.

U.S. GOVERNMENT INVESTING IN SOLAR TECHNOLOGY

Concentrating solar power technology takes advantage of aimed mirrors to reflect sunlight onto solar receivers that convert the solar thermal

energy into heat. The thermal energy is then used to produce electricity through a steam turbine or heat engine. The U.S. DOE (Department Of Energy) has opted to invest \$60 million over the next three years to further the development and commercialization of the solar technology. The DOE hopes to make concentrating solar power a competitive option for the intermediate power market by 2015 and utilize the technology in the baseload power market by 2020. Concentrating solar power is efficient because it can generate electricity at a relatively low cost, and it’s idle for delivering power during the peak demands of daytime. The \$60 million investments should help to fund research for thermal storage that can add greater value to concentrating solar energy plants. ●

Why Do Mobile Apps Cost So Much?

Supply, Demand, Complexity & Customization, For Starters

Have you heard the siren call of custom mobile apps lately? A custom mobile app might solve a problem your company is experiencing, make a slightly awkward process more efficient, or provide a great way to interface with current and potential clients. Nearly everyone has a smartphone or tablet these days, so leveraging the popularity of mobile devices can't help but provide more exposure for your company. If it also solves a problem, so much the better.

STICKER SHOCK

A custom mobile app seems like a great idea. Browse the various app stores and you'll see that business apps range from free to \$1,000 or so, which might lead you to believe that a custom app couldn't cost all that much.

If you assemble a list of the features and capabilities you're looking for, and send out RFQs, you may be shocked by

what you get back. Depending on what you ask for, the estimates may range from \$20,000 to \$200,000 or more. But the reasons for the price discrepancy are sound and have as much to do with supply and demand as the complexities of creating a custom app.

CUSTOM APP DEVELOPMENT

Gregg Weiss, president of Blue Whale Web Solutions (www.bluewhaleapps.com), agreed that \$20,000 to \$200,000 is a valid price range. "The quality and experience of your development team, and the number of resources that are assigned to each project, are the major factors that determine price. At Blue Whale, we assign a dedicated team to each project that consists of a project manager, lead engineer, and UI/UX designer, all working together."

If you need to integrate the app with your system, that can easily add 20 to 30% to the overall cost. The cost will be

even higher if your backend system API (application programming interface) isn't well documented, or you don't have experience with integrating front-end apps. Integrating an app into an existing system can also take a significant amount of staff time, something many clients forget to include in their budget.

SUPPLY & DEMAND

Development costs are on the rise because demand for talented senior developers with mobile app backgrounds is higher than the available supply.

We asked Brett Rosen, managing partner of Frenz (www.buzze.com), about the effect that a limited pool of developers has on the cost of developing apps. "Clearly supply and demand is increasing the cost for development talent," Rosen said. "You have to look at the confluence of factors here. The mobile application space is growing very rapidly. At the same time, the primary SDKs (software development kits) that



Gregg Weiss

president, Blue Whale
Web Solutions

"Not every app requires integration with a client's system, but for the ones that do, it's important that the client have well-documented APIs and a tech person who can clearly communicate with the app developer."



Brett Rosen

managing partner,
Frenz

"The easier it is for a user to provide feedback the moment they have a comment, the more comments you will get. That in turn helps you do a better job of tuning the app to the needs of the real users, and sends a message to the user community that their feedback is important enough to make it easy to provide it."



Michael Goff

co-founder,
Cocoaish

"The rise of app stores is directly responsible for the rise in the availability and popularity of apps. They are not a bubble or trend, but fundamental components of the app economy. However, it's the rise in popularity of apps that is driving up the cost of developers. Since their skills are in demand, they can charge premium rates."

developers are relying on are relatively new. That leaves a limited supply of experienced developers to service that rapidly growing demand."

Rosen expects the pool of talented developers to increase, and the growth curve of mobile apps to flatten, but that may take years. In the meantime, talented senior developers can command high fees or salaries for their services.

STOCK VS. CUSTOM

As you can tell, it's not a good idea to compare the cost of a custom app with an off-the-shelf app. Developers of stock apps can spread development costs across a larger number of customers, as well as numerous revisions; custom app developers don't have this luxury. They need to both recover their development costs and turn a profit in the first iteration of an app, because there's no guarantee that the client will return for any future versions of the app. In some cases, clients hire a developer to create an app, and then perform any follow-on development themselves.

Michael Goff, co-founder of Cocoaish (www.cocoaish.com), points out another reason why it's not a good idea to compare app store prices to the cost of custom development. "It's extremely hard to make a successful app that can financially support one or more developers based on app store purchases or in-app advertising. Therefore, most app developers will publish to app stores, but still have full-time jobs. Their published apps serve as resumes for obtaining paying jobs."

COMPLEXITY

Mobile apps are surprisingly complex to develop, and some environments are easier to develop for than others. Many clients need cross-platform versions of apps, to support multiple types of devices and multiple OSes. This not only drives up the cost, but also increases development time.

Gavin Miller, lead developer and co-owner of Randomtype (www.randomtype.ca), spoke about working with multiple platforms. "With mobile development

in its infancy, there are a lot of issues of cross compatibility. Take, for example, a single app that supports iOS 4 and iOS 5. These apps require testing and bug fixes for iOS 4 Retina and non-Retina, and iOS 5 Retina and non-Retina. Add in an iPad and iPad 2," Miller says, "and we're talking four to six different configurations just for Apple products. From there, if you add Android—which is lacking in device uniformity—you're looking at testing and bug fixes across another four to six pieces of hardware. Bottom line: This type of work takes time and resources."

USER FEEDBACK

Most mobile apps include a method of soliciting user feedback. Developers use this feedback to squash bugs or plan improvements for the next revision. You may wish to have feedback sent to your company instead of to the developer, which means the developer will need to write a feedback system that can interface with your existing system; alternatively, you can purchase and implement the feedback system the developer uses. Either way, it's another expense to include in your budget.

The cost doesn't end with adding services to your backend system. Someone must collect the feedback, respond where appropriate, and use the information to plan future versions of the app. If you develop a long-term relationship with the developer, one that encompasses multiple product revisions, the user feedback cost should drop, to nearly nothing in some cases.

REALISTIC EXPECTATIONS

Keeping your design goals reasonable can help keep costs under control. Unless your idea for a mobile app was way off base, you'll see many versions of the app as your business changes and grows. There will be plenty of time to add new features later. By waiting until the next version to implement some features, both you and the developer will have a better idea of what works best for you, and that can save you time and money in the long run. ●

What's Next IN WI-FI

New Standards Coming Soon

Wi-Fi technology has proven to be essential to connecting wirelessly to the Internet from our homes and businesses. The IEEE (Institute of Electrical and Electronics Engineers) and the Wi-Fi Alliance have been the faithful stewards of Wi-Fi technology. Over the years, the IEEE has introduced enhancements to the IEEE 802.11 (i.e., Wi-Fi) standards, and the Wi-Fi Alliance has branded the standards and promoted their use in products.

The IEEE is currently working on new 802.11 standards, including 802.11ac, to meet market demands and use cases. The radio spectrum is at the heart of Wi-Fi technologies, and new innovations involve accessing and using it in different ways. To learn more, we start with a review of how far we've come with 802.11 standards and then take a closer look upcoming innovations.

WI-FI BACKGROUNDER

The IEEE 802.11a and 802.11b standards were released in 1999, which is also the year that the Wi-Fi Alliance began serving as the trade association for products using the technology. Adoption of 802.11a

was slow, so 802.11b became the first widely used Wi-Fi technology. In 2003, the 802.11g standard came onboard, offering faster data rates. All three of these standards were designed to support a single stream of data to connect devices such as PCs, tablets, and handhelds to the Internet.

The most recent standard commonly in use today is 802.11n. Officially adopted in 2009, the 802.11n standard offers backward compatibility with 802.11a/b/g networks and provides faster data speeds and a longer range. The main factors that make these enhancements possible in 802.11n is the addition of MIMO (multiple-input, multiple-output) antenna support and broader frequency bands.

►► The 802.11ad (WiGig) Standard

In addition to 802.11ac, the 802.11ad standard is also being developed. One of its goals is multi-gigabit speeds to support fast file transfers, wireless display and docking, and streaming high definition media. The 802.11ad standard operates at the

60GHz frequency, and it is incorporated with the WiGig Alliance. "802.11ad is really for line of site, very high-speed transmission, like from a phone to a TV set, for example," says Allen Noguee of In-Stat. It will have very limited range, but the WiGig Alliance

MIMO technology uses multiple receivers and multiple transmitters in client devices (for example, notebooks, handheld devices, and phones) and wireless access points. MIMO allows antennas to combine data streams arriving from different paths and at different times to enhance signal-capturing power. More antennas provide more data streams, which support higher data rates.

The 802.11n standard accommodates four data streams and data rates up to 600Mbps. In practice, 802.11n products currently on the market provide two data streams, which offer data rates of up to 300Mbps—more than five times the 54Mbps maximum rate of the 802.11g standard.

specification includes compatibility with existing Wi-Fi technologies and integration with 2.4GHz and 5GHz networks. Chipmakers are expected to create tri-band chips that support the 802.11n, 802.11ac, and 802.11ad standards.

►► Wi-Fi Technology Comparison

	802.11a	802.11b	802.11g	802.11n	802.11ac	802.11ad
Year Adopted	1999	1999	2003	2009	Pending	Pending
Radio Frequency	5GHz	2.4GHz	2.4GHz	2.4 or 2.5GHz	5GHz	60Hz
Band	20MHz	20MHz	20MHz	20 or 40MHz	80 or 160MHz	7GHz
MIMO Streams	No	No	No	Up to 4 streams	Up to 8 streams	> 10
Maximum Data Rate	54Mbps	11Mbps	54Mbps	600Mbps	1Gbps	7Gbps
Approximate Indoor/ Outdoor Range	115/390 feet	125/460 feet	125/460 feet	230/820 feet	90 feet/NA	<15 feet/NA

HIGH-THROUGHPUT 802.11AC

One of the next versions on the IEEE's roadmap is 802.11ac. The main goal for 802.11ac is higher throughput, which essentially provides more capacity than previous Wi-Fi technologies. It builds on the 802.11n standard, but with even broader frequency bands, support for more MIMO data streams, the addition of MU-MIMO (multi-user MIMO, to transmit data streams to different users), and more antennas.

"Today, most Wi-Fi devices run on the 2.4GHz band composed of a certain number of channels," says Allen Noguee, research director for the wireless technology group at In-Stat (www.instat.com). "You can have three to four networks on the 2.4 GHz band without interfering too much. The advantage of 2.4GHz band is it goes pretty far, but the disadvantage is that the amount of spectrum on it is fairly narrow."

To support higher throughput, the 802.11ac standard has very wide channels, which requires it to operate on the 5GHz band. "Range is going to be less with 802.11ac because when you go up to the higher frequency, it does not penetrate as well," says Noguee. "But there is a wide amount

of spectrum, so that the capacity can be higher. You can have a lot more people talking together, and actually, being up in the higher frequency and having it go less distance is a benefit in a place like a convention center."

GIGABIT SPEEDS?

One of the objectives for the 802.11ac standard is to provide 1Gbps (gigabit per second) data rates. For many use cases, however, that speed is not achievable. "The reality is that most people use Wi-Fi to connect to the Internet, so if you don't have a gigabit backbone, as most homes and businesses do not, then 802.11ac is not going to provide faster speed," says Noguee.

The IEEE states that usage models for 802.11ac could include simultaneous streaming of HD video to multiple clients throughout the home, rapid synchronization and backup of large data files, wireless display, large campus/auditorium deployments, and manufacturing floor automation. The 802.11ac standard can provide faster speeds for the right devices, but it has a shorter range than 802.11n. In addition, to achieve 1Gbps rates, the devices must also support and use the maximum number of data streams.



Allen Noguee

research director for
the wireless technology
group, In-Stat

"802.11ac is geared to higher capacity. It uses a higher level of modulation and multiple antennas, and you can have different antennas assigned to different groups of users in a small business or enterprise environment."

THE 5GHZ BAND

To provide high capacity, 802.11ac uses a higher level of modulation, multiple antennas and data streams, and increased bandwidth per channel. However, because it operates exclusively in the 5GHz band, it only provides benefits to devices that also operate in the 5GHz band. 802.11a was the first technology to be authorized in the 5GHz band, but is not widely used. 802.11n can use both bands, but most 802.11n devices only make use of the 2.4GHz band. According to ABI Research (www.abiresearch.com), most chipsets will be dual-band to support both 802.11n and 802.11ac.

"If you have a 2.4GHz 802.11n device, like a phone, having 802.11ac is not going to give you any benefit at all because the device can't see the 802.11ac network," says Noguee. "The access points will be backwardly compatible by providing support for other 802.11 technologies, but both the access point and device must support 802.11ac to experience its benefits."

COMING SOON TO AN ACCESS POINT NEAR YOU

Chipmakers have announced that they will have draft 802.11ac products come out before the Wi-Fi Alliance starts certifying 802.11ac products in 2012. "Most access points will flip over soon, since everyone likes to have the latest and greatest," says Noguee. "You'll start seeing devices in 2012 range and many more in 2013. I don't think you'll see phones until 2013." ●



Protect TABLET DATA

IT & Mobile Workforce Security

a survey released earlier this year by collaboration service provider FuzeBox (www.fuzebox.com) reveals the practices and assumptions about tablet security, and the results only serve to highlight the disparity between how tablet users transmit data and how secure those transmissions feel.

According to the responses from 2,364 adults, 48% of tablet owners transfer sensitive data, with 42% transferring data for personal use and 30% doing so for business use. More pointedly, 18% of adults who own and use a tablet or smartphone are “extremely/very confident in the security of data that is being transferred over their device.” By contrast, 15% are not confident at all about the transfer of data.

Unfortunately, that unconfident 15% might have the most appropriate instincts regarding the non-secure

nature of Internet-connected devices. In a recent Staples Advantage survey of more than 200 tablet users on the B2B side, less than 15% said they have installed encryption or antivirus software on their device. Notwithstanding, 60% of the Staples Advantage respondents believe tablets will eventually become their exclusive computing tool; 95% say convenience of portability is why they have one already. If that 60% is correct (and they probably are), what does enterprise IT do to protect tablet end users from the devices threats and vulnerabilities?

Identifying the threats and vulnerabilities is step one. “The level of threat depends on the selected tablet,” says Paul Moore, senior director of mobile product management for Fujitsu America (us.fujitsu.com). “With the diversity of devices and the future reliance on open systems the potential for increased

cyberattacks is a real concern. Downloading apps on devices from an unverified supplier is dangerous because they may include malware.”

TABLET TOOLS FOR SECURITY

Aside from device loss and theft, lack of device encryption is one of the most pronounced vulnerabilities of a tablet. However, protective measures aren’t too technical for the average user: you can set up entry passcodes on tablets to prevent the wrong hands from accessing any of your apps or you can use a more advanced security system by purchasing and downloading apps from trusted security vendors.

Heather Rutledge, product manager for Password Genie at SecurityCoverage (www.securitycoverage.com), says that some of the common oversights regarding tablet security can include the lack of a wipe feature that allows sensitive

data to be deleted from the device if it goes missing, installing malware-infected apps, and failing to protect a tablet with antivirus applications.

Rutledge goes on to highlight the features of security apps, such as Kaspersky Tablet Security (\$19.95; usa.kaspersky.com) and Mobile Security by Trend Micro (\$29.99 for one year; us.trendmicro.com), which are ideal for end users.

"Focused on the Android platform, Kaspersky scans the whole device on demand and performs real-time checks on apps, downloads, and attachments received through email or instant messaging," Rutledge adds. "Kaspersky Tablet Security has a touch-screen interface specifically designed for the tablet format. [Mobile Security by Trend Micro] provides parental control, safe surfing, as well as anti-spy software solutions. Standout features include intrusion detection, a firewall, and central management (via a third party application)."

SecurityCoverage's free Password Genie mobile app for Android protects the numerous website usernames and passwords you use on

a daily basis. By selecting Add New Entry, you can save logins and bookmarks associated banking, credit card, frequent flyer, hotel, and other custom accounts.

On a grander scale, enterprises should rely on an EMM (enterprise mobility management) approach, "that is aligned with their core IT services, leveraging the same infrastructure and processes to secure and manage mobile devices like other IT assets, such as laptops," says Brian Reed, chief marketing officer and vice president of products at BoxTone (www.boxtone.com). "Integration to Active Directory, the central policy setting service for bigger companies, is a must."

TABLET PITFALLS FOR IT

The influx of devices (whether personal or company-issues) within enterprises presents an ongoing challenge for the IT department: How do you integrate tablets into a corporate network and maintain a high security standard?

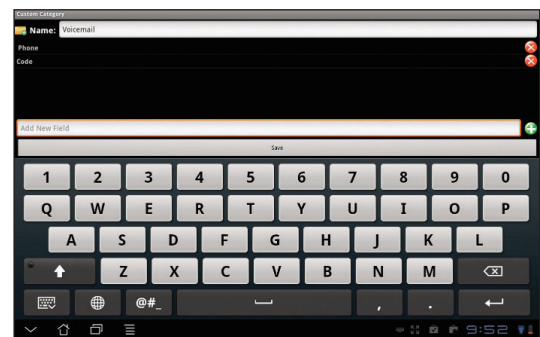
To manage and secure enterprise tablets, Reed explains, "IT needs an automated technology framework that can ensure tablets are in the right hands, and, when necessary, can remotely wipe and quarantine them if a chance of data misappropriation arises."

Reed adds that perhaps the greatest threat to tablets in enterprise environments is an overwhelmed IT team. "Tablets have more computing power, and store more sensitive data, than laptops of even a few years ago."

Moore compares this challenge to when IT first allowed smart phones in the corporate network. "Tablets invite more applications and given the selection of new operating systems available they will present new challenges which may or may not be

protected under the current security profile. There are a lot of attacks on Windows due to the large number of users, but there are also a lot of protections that this OS supports."

As much as end users desire to protect their tablets in and out of the office, if they don't have on-call support from the IT department, mobile workers may not be equipped for the scenarios in which they've misplaced their device or opened a malicious



The free Password Genie mobile app from SecurityCoverage stores and safeguards a database of your logins and passwords.



Brian Reed

chief marketing officer and vice president of products, BoxTone

"The more tablets [are] connected, the more likely the chance of a compliance or security lapse that can lead to real monetary losses."



Paul Moore

senior director of mobile product management, Fujitsu America

"If your backend enterprise architecture is Windows, as most are, and you chose a Windows tablet, then you can leverage this security just as you would on a notebook computer."

app. Exercising caution and common sense works well when a company has outlined what is allowed and not acceptable when operating a tablet on the road or using the VPN (virtual private network) connection.

Rutledge says that one of the most important tools companies have is the ability to educate their staff. "Educate employees on the importance of treating a tablet just like they would a computer: use anti-virus software to protect your device, and be aware of what sites you visit and the applications you download. Use unique passwords for protecting your device and never give your password to anyone."

IT IS PART OF THE TEAM

In the economy of mobile devices, it appears that tablets are on their way to the top of the food chain. Consequently, the best practice for end users and IT to prepare for even more tablets in the enterprise is to collaborate and prioritize mobile security. ●

Tablet Updates

You interact with your tablet's operating system everyday, so you don't want to be left out of the loop when developers roll out intuitive new changes. Because we know you have other priorities, we researched the latest OS (and firmware) updates so your mobile device is always a readied digital sidekick.

ANDROID'S ICE CREAM SANDWICH FILLED WITH NEW FEATURES

Android's 4.0 platform, affectionately labeled Ice Cream Sandwich, builds on the increasingly intuitive capabilities of previous Android OS



Android 4.0 (aka Ice Cream Sandwich) features enhanced mobile data usage settings that let you track and automatically limit data expenditures (left) and includes Google + Hangouts and Messenger (right). (These are smartphone screen images; tablet versions were unavailable at press time.)

versions and goes a step further: it unifies the OS and UI (user interface) into a version that runs on tablets and smartphones. Take note, Asus Eee Pad Slider SL101 (www.asus.com) users, because you'll be able to upgrade to the 4.0 version from 3.2. Here's a breakdown of what you'll get in ICS:

Enhanced UI. The Android developer website reports that ICS will offers users "easy multitasking, rich

notifications, customizable home screens, resizable widgets, and deep interactivity." Users will appreciate the Recent Apps button, which lets them switch between two tasks on the System Bar list. Home screen folders let you organize groups of apps. The Favorites Tray lets you customize shortcuts, apps, and more on any home screen, but only on devices with smaller displays. Other improvements include the ability to jump directly from the lock screen to an app and better spell checking.

Greater data control. How you use your data isn't a mystery with Android 4.0: The Settings app pulls up your monthly data usage in chart format and lets you manage data consumption. The OS also includes a VPN client API for enterprise developers.

Enriched multimedia. The new Camera app features continuous focus, no shutter lag, single-motion panorama shooting, and image zoom stability. If you're recording video, you can grab snapshots in full resolution or use the Live Effects feature to insert backgrounds. The Gallery app offers multiple ways to organize and share photos and videos. The Picture Gallery

The BlackBerry 10 platform will unify managed services among the PlayBook, smartphones, the cloud, and embedded systems in cars.

widget manages photos on the designated home screen.

Better communication. To streamline the interactivity among social groups, profiles, and contacts, the People app provides plenty of individual profile information including pictures, phone numbers, addresses, events, status updates, and more. When you compose an email, Android 4.0 will auto-complete text, store quick responses for future use, and track incoming emails.

RIM'S LATEST MOBILE PLATFORM

Slated to supersede the BlackBerry PlayBook's Tablet OS, Research In Motion will soon deploy BlackBerry 10 on tablets and smartphones. According to Inside BlackBerry (the official BlackBerry blog), the OS will rely on the capabilities of the BlackBerry platform and the QNX platform to "connect people, devices, content, and services." In addition, it supports the following environments, primarily relevant to

developers: Adobe AIR, HTML5 with BlackBerry WebWorks, Native C/C++, and BlackBerry Runtime for Android apps. And, when developers get to work with the new BlackBerry Cascades UI framework, users will be able to enjoy custom layouts, animations, effects, and 3D graphics. ●



There's a better, more secure way to remember passwords!



Recent research shows that most employees have to remember over 8 different user names and passwords.

This is **inefficient** and results in more calls to **the helpdesk**. This also creates a **security risk** because passwords are often written down on Post-its®.

Single Sign On (SSO) software can securely remember passwords for each employee!

Want to know more?

Take a look at www.tools4ever.com/sso/



Experts in Identity & Access Management.

Top Tablet Apps



There is a seemingly endless supply of apps available for today's popular tablet platforms. In these pages, we have selected some of the best tablet apps for business, productivity, and travel. You'll find a mix of apps that are new or have been recently updated and apps that have stood the test of time and received high ratings from users.

AD HELPDESK

► iOS | \$7.99 | 3.2MB

John Bowers' AD HelpDesk (Rel. Nov. 22, 2011) helps administrators in companies that use Microsoft Active Directory manage user account and password issues. As with previous versions, the app enables you to work directly with user passwords (e.g., reset passwords, force reset at login, notify users about passwords) and accounts (e.g., enable accounts, disable or unlock

accounts, find locked accounts) at the individual level. Recent AD HelpDesk upgrades bring the same management capabilities to the group level, adds the ability to modify certain user account properties, and enables management of multiple domains.

BOX

► Android | Free | File Size Varies

Also available for iOS and recently introduced for the BlackBerry PlayBook,



AD HelpDesk
for iOS



Box
for Android



Currency Exchange Rates
for BlackBerry



File Station Tablet
for Android

the Android version of Box (Rel. Oct. 29, 2011) offers the same basic features: 5GB of free storage for your files, which you can then access, manage, and share by logging into your Box account on your tablet computer. Business accounts are also now available; these include additional tools for collaborating on documents, securely transferring files, and managing projects and tasks, plus additional storage capacity. The current version of the Android app includes search, cache, and other improvements.

CURRENCY EXCHANGE RATES

► **BlackBerry** | \$2.99 | 374KB

Current Exchange Rates For BlackBerry PlayBook (Rel. June 20, 2011) from TrustBe remains a popular choice for international travelers. The app focuses on one thing and does it accurately: It provides exchange rates for more than 70 currencies. The app works offline for convenience, but when it's online it automatically updates exchange rates. You can also access any exchange rate's history for reference or to note trends. Note that this app is designed specifically for the PlayBook and is unavailable for other BlackBerries or platforms.

FILE STATION TABLET

► **Android** | Free | 624KB

Whether you prefer to access your files via a folder view or from a list, you can access everything stored on your Android tablet quickly with Fargo Software's File Station Tablet (Rel. Aug. 9, 2011). The app's main screens are clutter-free for easy navigation, featuring icons for the folders stored on the tablet, a column of quick navigation links, and drag-and-drop functionality. You can choose alternative views to suit your tastes, perform searches, and save frequent searches for speedy access anytime. The most recent version adds the ability to decompress zipped folders.

INTUIT GOPAYMENT FOR TABLETS

► **Android** | Free | 1.6MB

Also available for BlackBerry and iOS, the latest Android version of Intuit GoPayment For Tablets (Rel. Nov. 16, 2011) contains minor fixes and is largely unchanged from other recent versions. The free app works in conjunction with an Intuit card reader (also free) and an Intuit GoPayment account to give users the ability to accept credit card payments just about anywhere. There is no charge or subscription rate for the account itself, but users do pay a fee for every transaction.

MOXIER MAIL FOR TABLET

► **Android** | Free (trial version) | 5.5MB

Created for Microsoft Exchange ActiveSync users, Moxier Mail For Tablet (Rel. Nov. 14, 2011) offers mail, calendar, task, and note functionality along with search, encryption, push mail, and other features. Email security is among the app's most significant benefits; in addition to data encryption, Moxier Mail For Tablet provides SSL for secure data transfers, S/MIME, and pass-code protection for the app itself. The most recent app update adds more import and export settings among other improvements.

PRESENTATION LINK

► **iOS** | \$7.99 | 4.7MB

Presentation Link (Rel. Nov. 22, 2011) is a popular presentation app from Zuhanden that has recently been updated with an updated video player and support for voice recording and YouTube sharing. Optimized for iOS 4.0 or later, the iPad version of Presentation Link is an indispensable tool for making product and company presentations, sales pitches, and about any other type of presentation you can think of anywhere you can take your iPad. The app



Intuit GoPayment For Tablets
for Android



Moxier Mail For Tablet
for Android



Presentation Link
for iOS



PresentiaFX
for BlackBerry

also lets you present via projector or external display using a VGA or HDMI connector. The app supports multiple file formats and integrates with Dropbox and email for importing and exporting presentations.

PRESENTIAFX

► **BlackBerry | Free | 6.9MB**

Plus Two Limited's PresentiaFX (Rel. Nov. 22, 2011) offers a BlackBerry PlayBook-optimized alternative to other presentation solutions. Using the app requires that you set up an account at www.presentiafx.com; single-user and corporate rates are available. (Note that Plus Two Limited is located in the UK and has daytime support hours.) After presentations are created and saved online or directly to the PlayBook, they become available in the app's library for making presentations anywhere.

SWIFTKEY TABLET X

► **Android | \$4.99 | 4MB**

Billed by its developer, Touch-Type, as "the keyboard that knows you," SwiftKey Tablet X (Rel. Nov. 18, 2011) is a soft (software) keyboard for Android tablets. The app offers a straightforward typing space that's useful for entering information for use in email, social media, or other apps. The app also uses AI (artificial intelligence) so the app can "observe" and "learn" what and how you type to better predict the words and phrases you're most likely to type in the future. For instance, it could be that for you, "sw" might be the beginning of "Switzerland" more often than "sweet." The newest version contains many improvements and adds support for more languages.

SYSTEM STATUS

► **iOS | \$2.99 | 0.7MB**

You might be drawn in by the visual bells and whistles of Jiri Techet's System Status (Rel. Oct. 27, 2011), but the app includes an impressive set of battery,

memory, processor, and network monitoring tools by any measure. You can use the app to discover a wealth of information about your iPad's battery, running processes, network connection (Wi-Fi, cellular, networking hardware), operating system, software, and more. An especially worthwhile feature is the ability to monitor memory usage and free up memory when needed. The most recent version of the app includes improved iOS 5 support.

TEXTEXPANDER TOUCH

► **iOS | \$4.99 | 2.2MB**

If you spend a lot of time typing on your iPad, SmileOnMyMac promises that its TextExpander app (Rel. Oct. 7, 2011) will make it possible for you to type faster. The app, which first became popular in its iPhone version, lets you create shortcuts for any number of longer "snippets" of text. You can, for instance, create snippets for frequently used addresses, unusual words, or even lengthier form letter replies. The app also lets you create specialized snippets such as one that will automatically insert the current date. (Note: The app appears as simply "TextExpander" in iTunes.)

YELP

► **iOS | Free | 15.6MB**

The Yelp (Rel. Nov. 21, 2011) iPad app has been around for a year, but there have been many improvements in that time and the most recent updates have fixed numerous bugs to make for a smooth-running app. Good for travelers of all stripes (business or otherwise), the app offers the same information you can get from the Yelp website, but formatted for an iPad experience complete with photos and pinch-and-zoom capabilities. Yelp (the website and the app) provides a way to search for nearby businesses and find maps, directions, and reviews written by "real people" for those businesses. ●



SwiftKey Tablet X
for Android



System Status
for iOS



TextExpander Touch
for iOS

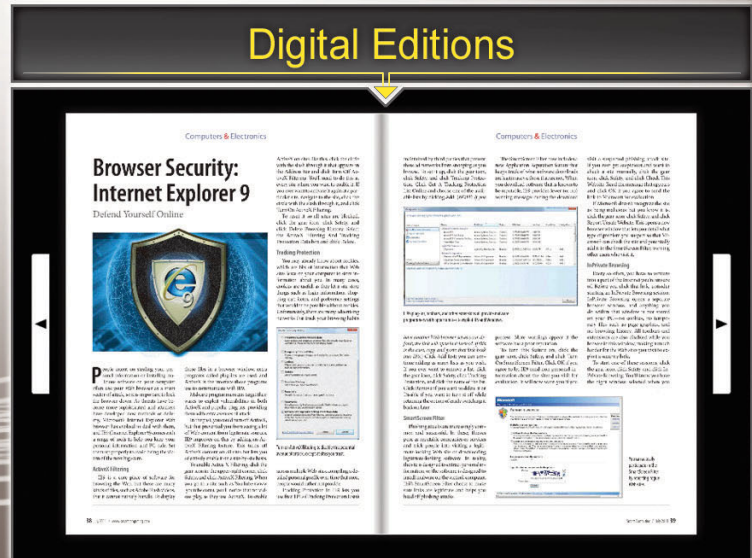
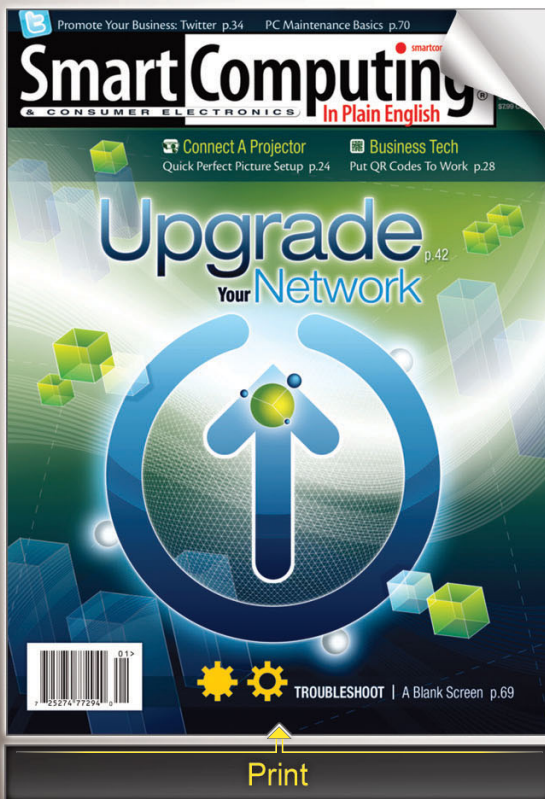


Yelp
for iOS

The Tech Info You Need, In Plain English

You don't need to be an IT guru to buy and maintain computers and gadgets for your home or small office. *Smart Computing* keeps you up-to-date with plain-English articles that explain new technology and define technical terms. Each issue includes news, tutorials, and step-by-step troubleshooting guides.

More than a typical magazine, *Smart Computing* is a reference tool. Benefit from the years of tech support advice archived on our Web site as well as access to our Digital Editions from any Internet-connected PC.



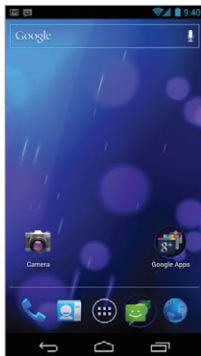
Smartphone Updates

You probably rely on your smartphone for many things, and with updates, you can improve both the efficiency and functionality of your mobile phone. We'll detail the most newly released updates to help you maximize the use of your smartphone while you are on the road.

NEW FOR ANDROID

Google recently announced Android 4.0, aka Ice Cream Sandwich. Key highlights of the updated operating system improved multitasking through a Recent Apps button that makes it easier for you to jump between your current task and another one. Another improvement is the Home Screen folders that let you group apps and shortcuts together for quick access. Android 4.0 also lets you resize widgets to fit your needs.

Android 4.0 includes a number of interface and feature improvements.



NEW FOR BLACKBERRY

Research In Motion announced BlackBerry Business Cloud Services For Microsoft Office 365, which is an online service RIM hosts to provide access to Microsoft Exchange Online email, calendar, and other organization data from your BlackBerry. The service also provides Web-based controls for IT administrators to manage and secure BlackBerry smartphones. IT staff can also remotely manage security function, such as resetting or remotely wiping a device.

BlackBerry Tag is a new feature that will be included with the next BlackBerry 7 OS update. The feature lets you share content with other BlackBerry users by simply tapping your

BlackBerry 7 devices together. You can share contact information, documents, URLs, photos, and other multimedia content. Another handy feature lets you enable friends as BlackBerry Messenger contacts simply by touching your BlackBerrys together.

NEW FOR IOS

Apple released iOS 5.0.1 to fix bugs that occurred after users upgraded from iOS 4 to iOS 5. Corrections include lowered battery drain (although users are reporting this issue has not been entirely fixed), problems accessing documents in the Cloud, and several security improvements.

iCloud is one of the key add-ons for iOS 5, because it's a free service that incorporates access to iTunes In The Cloud, Photo Stream, and Documents In The Cloud on your smartphone. Thus, you'll be able to wirelessly access music, images, and documents on your smartphone without needing to store all the files locally on your phone. iCloud can also store things like your apps, contacts, calendars, and tasks. The content will synchronize across all the devices you use to access iCloud, so it's helpful when you need to access



BlackBerry Tag lets you exchange phone content and information by simply touching two or more phones together.

files across multiple computers and iOS devices.

NEW FOR WINDOWS PHONE 7

Microsoft recently released Windows Phone 7.5 (aka Mango). Among the new features introduced with version 7.5 is the ability to sync data with SkyDrive, SharePoint, or Office 365, so you can remotely upload and access important files. A new Office Hub lets you share uploaded files with colleagues. Windows Phone 7.5 now supports threaded email conversations and also lets you link multiple accounts on your phone. The new rights management features also let you

With Windows Phone 7.5, you'll have remote access to the files you need the most through SkyDrive, SharePoint, or Office 365.



set email restrictions such as Do Not Forward or Do Not Copy.

If you are looking for apps for your Windows Phone 7 device, check out Marketplace Extra on the Windows Phone website, which covers new, helpful, and fun applications. You can sort and search through the app catalog entries to find what you need. Marketplace Extra also lists apps news, reviews, and other content for Windows Phone 7. ●



Top Smartphone Apps

Choosing an app that fits your needs can be an overwhelming task as the number of available apps increases daily. We browsed a variety of websites and selected some of the best applications for business, finance, productivity, and travel. In the pages that follow, we highlight a mix of those that are new or recently updated.

AIRCREDITS

For Android

► **Android** | \$0.99 | 238KB

The 1.0 version of the new AirCredits (Rel. Nov. 15, 2011) app from developer David Quinlan isn't packed with features, but it does one thing really well: It will save and track your banking, credit card, and reward program data. AirCredits keeps this data secure by requiring you to enter a four-digit passcode every time you launch the app. Quinlan intends to

enhance later versions with real-time account updates, photo capture, code reading, and Web browsing.

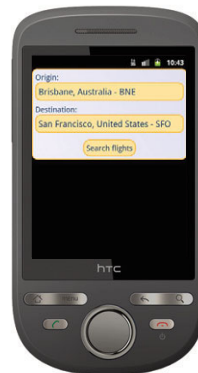
AVIABILITY

► **Android** | Free | 75KB

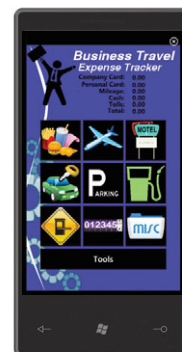
When you're booking a flight, you don't want to spend all of your time comparing flight duration, connection times, and arrival times, which is why Aviability (Rel. Nov. 19, 2011), from Aviability.com, is a nice mobile tool for comparing flights requests. The



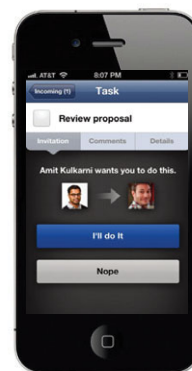
AirCredits
for Android



Aviability
for Android



**Business
Expense Tracker**
*for Windows
Phone 7*



Do
for iOS

interface is simple: type your origin and destination cities or airports and tap Search Flights. Aviability supplies flights “with short total duration,” so you won’t have to manually search for the most time-effective flight option.

BUSINESS EXPENSE TRACKER

► **Windows Phone 7** | **\$1.99** | **size**

Business Expense Tracker utilizes an icon-based interface to help you quickly assign your travel expenditures to the appropriate category. When you enter receipt or invoice details, select which payment method you used (company card, personal card, cash, other) so you don’t have to remember how you paid for every meal on the road.

DO

► **iOS** | **Free** | **3.3MB**

As a project management app, Do (Rel. Nov. 29, 2011) is great for mobile collaboration. And as cloud-based task prompter, Do gets it done. When you enter your email address at www.do.com and receive an invitation to Do, you can access incoming proposals, personal tasks, group projects, and notes anywhere from your iPhone. Do syncs with its Web app, works with your LinkedIn account, and supports Google Doc attachments.

EASYSAFE

► **Windows Phone 7** | **\$0.99** | **1MB**

EasySafe (Rel. Nov. 19, 2011), from Commentor AppFabric, is a newly released basic password manager that will store your passwords, PINs, and other confidential data. The master password encrypts everything you add to EasySafe, such as email logins, bank sign in data, and more.

ENVISIONACCESS

► **iOS** | **Free** | **9.1MB**

The EnvisionAccess app (Rel. Nov. 21, 2011) from Ennview gives you control over business processes and workflows when you’re away from the office. If

you use Envision Software version 6 (or higher) and subscribe to EnvisionAccess, you can administrate appointments, manage client lists, check inventory, and stay connected in real-time, whether you’re on a Wi-Fi, 3G, 4G, or Edge network. EnvisionAccess is compatible with Android devices, as well.

FILEHOUND

► **iOS** | **\$9.99** | **5.4MB**

This recently updated app remotely syncs with your desktop PC and connected external hard drives, so you can open documents, photos, and music via your iPhone. Splashtop’s FileHound (Rel. Nov. 16, 2011) retrieves the data from your Windows-based PC and lets you edit files on the remote desktop interface. In essence, FileHound is an alternate to third-party cloud storage options and “turns your computer into a cloud.”

GPS DRIVERS LOG

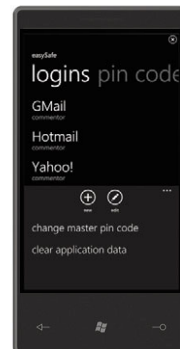
► **Windows Phone 7** | **\$0.99** | **4MB**

Need to track routes or mileage in multiple rental cars? Try Fair-Trade-4-You’s GPS Drivers Log (Rel. Sep. 19, 2011). Bing Maps pairs with your mobile GPS receiver to log distance covered. Plus, you can record gas fill-ups and overall fuel consumption.

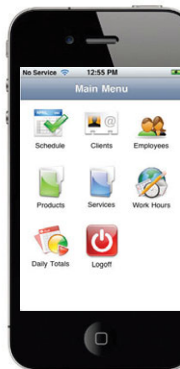
OUTLOOKREFLEX

► **Windows Phone 7** | **Free** | **1MB**

Just as the name of the app indicates, Outlook Reflex (Rel. Sept. 14, 2011),



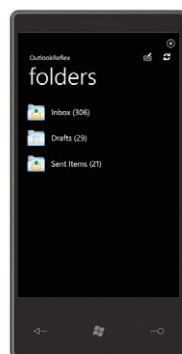
EasySafe
for Windows
Phone 7



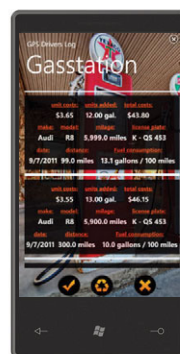
EnvisionAccess
for iOS



FileHound
for iOS



OutlookReflex
for Windows
Phone 7



GPS Drivers Log
for Windows
Phone 7

from MobileReflex, mirrors your Outlook Inbox on your Windows Phone 7 without requiring you to store mailbox data on the device. By remotely connecting to Outlook 2003, 2007, or 2010, you can search your email, reply to messages, and forward emails.

PROFITZ

► iOS | \$0.99 | 4.3MB

Profitz (Rel. Nov. 1, 2011), by Mohammed Wahab, is a quick-reference utility you can add to your financial app folder on your iPhone. Functioning as a stock investment calculator, you can use Profitz "to determine the net profit of your stock investment." Profitz calculates your take home profit according to your tax rate, brokerage commission, and other withholdings. The app also provides the following details: overall profit, profit after tax, profit after commission, profit after additional takeout, and expense breakdowns.

READMYMAIL

► iOS | Free | 0.7MB

Hands-free options reduce distractions while you're driving, but many only redirect calls to your Bluetooth-enabled headset. The Intone Networks ReadMyMail app (Rel. Nov. 7, 2011) audibly dictates your emails (from a single Gmail account), so you aren't tempted to scroll through your Inbox while you're on the freeway. ReadMyMail is compatible with iOS 3.0 and older. To personalize your ReadMyMail listening experience, you can adjust the pitch, variance, and speed settings.

SKYVI

► Android | Free | 1MB

The Android-based answer to Apple's Siri proprietary app, Blue Tornado's Skyvi (Rel. Nov. 18, 2011), will provide responses to your voice-activated questions. Some of Skyvi's basic functions include local business search, voice-to-Facebook access, voice-to-Twitter access, and answers to location-oriented

inquiries. For instance, you can ask Skyvi to locate restaurants near your hotel. Skyvi also responds with clever remarks and jokes to make your business day a little bit brighter.

TRIANGULATE

► iOS | \$0.99 | 0.1MB

Construction contractors and urban developers will appreciate Triangulate (Rel. Nov. 8, 2011), by Toby Coulstock, because it can help you pinpoint locations using bearings of distant objects. For example, if you're verifying the bearing of the nearby bay islands from the port, you can take one of three bearings to accurately determine their geographical positions. The more bearings you take, the greater the precision of the result.

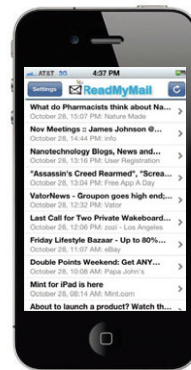
ZEROPC CLOUD NAVIGATOR HD

► Android | Free | 1.8MB

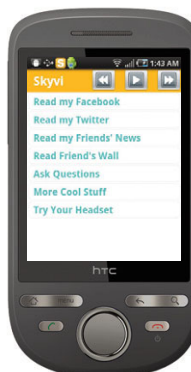
Ideal for consolidating your personal or business cloud data, ZeroPC (Rel. Nov. 24, 2011) from ZeroDesktop aggregates content from Web-based services including Box.net, Evernote, Facebook, Flickr, Google Docs, Instagram, Picasa, and SugarSync into a single universal search interface. You won't have to sign into each service individually because ZeroPC lets you access media with one login. Upon your initial sign up, you'll be able to use ZeroPC's Free Web Virtual Desktop to navigate the aforementioned apps in a single window. ●



Profitz
for iOS



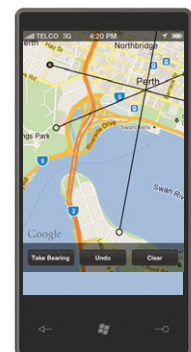
ReadMyMail
for iOS



Skyvi
for Android



ZeroPC Cloud
Navigator HD
for Android



Triangulate
for iOS

MOBILE OFFICE
BUSINESS ON THE ROAD



Smartphone Tips REACH YOUR PRODUCTIVITY PEAK

ANDROID

► Add/Remove User Dictionary Entries

Typing on a smartphone is awkward at best, so we're fans of anything that can speed up the process. The default Android keyboard application has an auto-complete function and User Dictionary that lets you add words to it that appear as you type. Tapping the word above the keyboard puts it into the text box, shaving precious seconds off your emails, text messages, and other mobile missives. It works great for generic words and phrases, but falls flat when typing unique items such as full names, email addresses, and unusual words you find yourself typing frequently. By manually adding such information, your Android device can display them

as auto-complete options. If you use an older version of Android (version 2.1 or earlier), you may need to enable Auto-Complete before you can start building your User Dictionary. On these older devices, press the Menu key; tap Settings, Locale & Text, and Android Keyboard; and then click the checkbox beside Auto-Complete. Android 2.2 and newer devices have Auto-Complete automatically enabled, and you can start editing the User Dictionary right away.

To add a word to the User Dictionary in Android 2.1 and earlier devices, access the Locale & Text menu, scroll to and tap User Dictionary, press the Menu key, select Add, type a word (such as your last name), and then tap Add. To do this in Android 2.2 and later devices, access the Language & Keyboard menu, tap User Dictionary, press the Menu button, tap Add, type a word, and then tap Add to complete the operation. We recommend creating User Dictionary entries for your first name, last name, first and last name together, and "@gmail.com" or any other frequently used domains. The next time you attempt to type any of the

Typing on a
smartphone is
awkward at best,
so we're fans
of anything that
can speed up
the process.

words from your User Dictionary, the full word or phrase will appear among the other Auto-Complete options.

Some third-party keyboards also have a predictive text component that attempts to learn words you type frequently and suggest them as you type. For these, simply tapping a word from the list of suggestions is enough to add it to the User Dictionary; in this case, you may have dozens of words in your User Dictionary that you rarely use but

that get frequently suggested. You can trim these by accessing the User Dictionary as described above, tapping a word you want to remove, and then tapping Delete.

► Enable Notifications For Each New Gmail Message

By default, the Gmail app only displays a notification for each new email thread, but new messages in each thread don't get a notification. For those who watch their email like a hawk, leaving this setting at the default is like putting blinders on. To fix this oversight, open the app tray, tap the Gmail icon, press the Menu key, tap Settings, select an account, scroll to and select Labels To Notify, then tap Inbox. On the Notifications For Inbox window, Uncheck the Notify Once setting. Tap OK, and then press the Escape key until you're back at the Home screen. Now you just have to make sure you keep up with the influx of notifications.

BLACKBERRY

► Speed Up Your BlackBerry

If your BlackBerry is getting a little long in the tooth, then performance issues are likely a regular occurrence. But there are several things you can do to give your BlackBerry a motivational kick in the pants. Perform these actions to speed up your BlackBerry.

Check your memory. If you don't have at least 12MB free then your

BlackBerry might begin purging old messages to remain functioning. If you regularly install apps, push that to about 20MB and note the file size of the apps before you commit to downloading them to maintain that limit. To check your device's remaining free memory on devices running BlackBerry OS 5 or earlier OS versions, access Settings from the Home screen, select Options, and then select Status. For BlackBerry OS 6-based devices, open the apps tray, select Options, Device, Device And Status Information, and then select Device Information. Alternately, you can press and hold the ALT, Shift, and H keys. View the File Free or Free Memory status, measured in bytes. Mentally add commas to determine how many million bytes are free, this is equal to the number of megabytes available.

Close background apps. To free up a few CPU cycles on a BlackBerry OS 6-based device, just press and hold the Menu button to display a list of recently opened applications, select an application you want to close, press the Menu button, and then select Close to fully exit the application. To access this list on a BlackBerry OS 5-based device, just press the Menu button twice in quick succession. Perform the same steps to close the applications.

Clear the Event Log. Almost every action you perform on your BlackBerry is made note of in the Event Log, and it can begin to occupy precious phone memory, so it's a good idea to clean it out occasionally. This operation is the same for both BlackBerry OS 5- and 6-based devices. Just press the ALT key and

type **lglg**. This will bring up the Event Log, which may look like a collection of unintelligible text entries. Press the Menu key, and then select Clear Log.

Clear the Browser cache. For BlackBerry devices running BlackBerry OS 5, scroll to the Browser application and launch it, press the Menu key, select Options, and then select Cache Operations. From this menu you can clear History, Content Cache, Pushed Content, and Cookie Cache using individual Clear buttons. All content is cleared when no more buttons are available to select. To perform this operation on BlackBerry OS 6-based devices, launch the Browser, press the Menu key, select Options, scroll to Clear Browsing Data, put a check in the Cache box, and then select Clear Now.

Remove any applications you no longer use. From the Home screen, select Settings, Options, Advanced Options, and Applications, and then highlight the application you want to uninstall. Press the Menu key and

select the Delete option to remove the application from your phone. When you're done, press the Escape key to return to the Home screen.

Another way to free memory is to delete the BlackBerry Sample Video that comes preloaded on your device. To get rid of it, select Settings from the Home screen; select Options, Advanced Options, and Applications; highlight the BlackBerry Sample Video; press the Menu key; and then select Delete.

IPHONE

► iOS 5 Twitter Tips

For iOS 5, Apple added a dash of Twitter to the iPhone's secret sauce, making it easier than ever to tweet. Here is a list of ways you can access Twitter from your iPhone.

To tweet from Safari, simply launch Safari, navigate to a page you want to post to your Twitter feed, press the Share button, press the bottom middle button, and select Tweet from the list of options that appear. Add text to your post, then tap Send to complete the operation.

You can use your iPhone to tweet from more than one Twitter account. Add additional Twitter accounts by launching Settings and Twitter. After you set up two or more Twitter accounts on your iPhone, you can choose the one you want to post a given message to by tapping the From field. If you want to send the same tweet to multiple accounts, you have to select each account individually and compose the tweet twice.

Your iOS 5-based iPhone can also tweet photos from the Photos app. Start by launching the Photos App, select



① Cleaning up your BlackBerry can improve its response time.

② Tweeting from your iPhone has never been easier.

a photo you want to tweet, tap the Share button in the bottom left corner of the screen, and then select Tweet. Next, just type some text and tap Send to complete the tweet.

The iPhone also has a special keyboard that makes using hash tags (denoted by the “#” symbol) and mentions (denoted by the “@” symbol) easier than ever. Whenever you tap the Share icon and then tap Tweet, the keyboard displays these two symbols to the right of the Spacebar, so you don’t have to dig into the symbols keyboard.

WEBOS

► Slingshot App Closing

If you have a webOS 3.X-based device, then you have a new way to close applications. The traditional way to close apps in webOS is to enter Card View by pressing the Center button and then swiping upward and off the screen. The new method starts with the app in Card View, but instead of swiping upward, press your finger on the app, draw your finger down, and then lift it. The app will then slingshot off the top of the screen. But the difference isn’t just aesthetic. Some of the apps you swipe up to close actually aren’t closed at all, just sent to the background to make

them relaunch more quickly. If you don’t foresee using the app again for a while, then use the slingshot method to effectively kill the app.

► Orphaned Card Fix

If you’ve ever encountered an app that will minimize to Card View after you press the Center button but won’t let you swipe up to close it, then you’re familiar with a known webOS bug. The problem with this bug is that the app doesn’t think it’s in Card View, and thus accepts any gestures that it would accept when maximized. You can launch and close other apps, but as long as this card is in the background, it’s still running. A soft reset will resolve the issue (power the webOS-based device off and then on again), but there’s a faster way to solve this problem. First, you need to make sure you have the Advanced Gestures enabled.

To turn on Advanced Gestures, tap the Launcher, navigate to Screen & Lock, and turn on Advanced Gestures. Now you can switch between running apps by swiping the full length of the gesture area to the left (next) or right (previous). This keeps the apps full screen and saves you the step of having to enter Card View with the Center

button to switch between applications. After enabling Advanced Gestures, you can still perform the Back gesture by swiping to the left in the gesture area, just make sure your Back gesture is small, to make sure it’s not confused with an Advanced Gesture.

Now, all you have to do to whip that misbehaving app into shape is swipe right or left the entire length of the gesture area to move to another app, and then swipe back to the app in the orphaned card. It should now be operating normally, so just swipe up to banish it from the list of apps running in the foreground.

WINDOWS PHONE 7

► Mango Ringtone Tips

Now that most Windows Phone 7 devices have gotten the Windows Phone 7.5 (aka Mango) update, one feature you’re sure to want to take advantage of is the support for custom ringtones. To get started, however, there are a few rules your new ringtones will have to adhere to. First of all, they must be in WMA or MP3 format, smaller than 1MB in size, DRM (digital rights management) free, and 40 seconds or less in duration. These are some pretty stiff requirements, but to make any songs you have in your Zune collection, all you have to do is right-click it, click Edit, click in the Genre field, type **ringtone**, and then select OK. Next, right-click the new ringtone and select Sync With Windows Phone 7.

To add your new ringtone to a contact, launch the Phone, navigate to a contact, tap the Edit icon (which looks like a pencil), and then tap the plus sign (+) in front of Ringtone. Any songs or sound clips you turned into ringtones (by changing the genre to ringtone) will appear under the Custom heading. Select the one you want to use to complete the operation. ●



① Change the genre to “ringtone” to let your Windows Phone 7 device recognize it as such.

② Advanced Gestures in webOS can resolve an orphaned card problem.

DIGITAL *Diversions*

YAMAHA'S PDX-11 GOES WHEREVER YOU MAY ROAM

► Rugged yet attractive in an industrial, uptown fashion sense, the new Yamaha PDX-11 (\$99.95; usa.yamaha.com) portable speaker truly does let you "take the party with you" thanks to a built-in iPod/iPhone dock and ability to operate on either AC or battery power (six AAs provide roughly eight hours of life). Available in four colors, the octagon-shaped PDX-11's steel carrying handle helps make taking the speaker to and fro a cinch, while a perforated steel grille offers protection and enhances the speaker's ready-for-anything appearance. Audio, meanwhile, is output through a two-way speaker (4-inch cone woofer and 1.375-inch tweeter) that's encased in a frame measuring 9.375 x 8.25 x 9.375 inches (HxWxD) and that also integrates a 3.5mm jack so you can connect the PDX-11 to non-Apple music players, laptops, and so on. Yamaha also throws in a remote control for those times when you just don't want to get out of the pool to turn up the volume.



SPAR CONJURES UP THE ZEPHYR

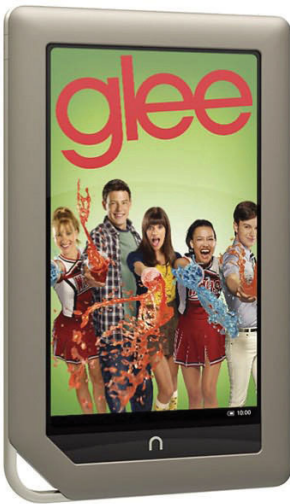
► Warren Osborn, CEO of Spar (www.spar.com), makes two hard-to-refute points concerning the current state of mobile devices. One, they typically output poor sound quality and, two, battery life often leaves something to be desired. To that end, Spar presents the new wireless, Bluetooth-supporting Zephyr lineup of models that the company touts as being the "first ever portable speaker/speakerphone/recharger combination." The Zephyr family includes the pocket-sized Zephyr 300 (\$99.99) and the Zephyr 500 (\$129.99) and 550 (\$159.99) models, which the company states will fit nicely in a bag or purse or on a desktop. All three speakers can output high-definition audio and let a smartphone or tablet zap some of their power via a USB-to-USB connection. The top-end 550 integrates two 1.5W speakers, offers approximately 30 hours of playing time, features aircraft-grade aluminum construction, and is available in Corani Silver or Sumatra Black.





KLIPSCH TAKES A WALK ON THE WILD SIDE

► Inserting Klipsch's new Signature Audio Edition Lou Reed X10i earbuds (www.klipsch.com) into your ear canals isn't going to suddenly enable you to write or perform music on the level of Sweet Lou. If the excellent sound quality that we've come to expect from Klipsch products over the years is any indication, however, the full-range KG 926 drivers at work in the Lou Reed X10i should fill your ears with all the same types of musical joy as they provide Reed himself, who states, "I have been a fan of Klipsch for eons. I enjoy the beauty of the unhyped bass—the clarity and depth of detail and extraordinary comfort of the headphones. These are my Klipsch. Serious headphones for the serious listener." Also serious is the X10i's \$399.99 asking price, which does net you a stately purple, gold, and black color scheme; iOS compatibility; and three-button in-line remote and 360-degree microphone for call and music control.



BARNES & NOBLE PUTS THE TABLET CROWD ON NOTICE

► These are good days for book-loving, media-consuming fanatics seeking a new tablet. Fresh off the debut of the \$200 barrier-breaking Amazon Kindle Fire (\$199; www.amazon.com) and Kobo Vox (\$199.99; www.kobo.com) ereader comes Barnes & Noble (www.barnesandnoble.com) recently bestowing upon us the Nook Tablet (\$249). The Wi-Fi-only tablet sports a 7-inch VividView touchscreen (1,024 x 600) that's capable of streaming HD video and comes preloaded with Netflix, Hulu Plus, Pandora, MOG, Rhapsody, and other multimedia-flavored apps. Measuring 8.1 x 5 x 0.48 inches [HxWxD] and weighing 14.1 ounces, the Nook Tablet omits a built-in camera and Bluetooth and GPS functionality but does grant access to the 2.5 million books, magazines, and other reading material available within the Barnes & Noble ecosystem, as well as free Wi-Fi access in any Barnes & Noble store. Expect 11.5 hours of reading or nine hours of video battery life and 16GB of included storage that's expandable to 32GB via microSD card slot.



ALTEC LANSING CUSTOMIZES THE LISTENING EXPERIENCE

► If you consider yourself an audio enthusiast who demands "only the best in audio accuracy, noise isolation, and comfort," Altec Lansing (www.alteclansing.com) has some news for you. The company is partnering with ACS Custom (www.acscustom.com) to offer demanding listeners who don't mind paying for quality custom-fitted in-ear monitors Altec Lansing states are engineered for DJs, professional producers, recording/mixing engineers, and musicians. To obtain an "unparalleled user experience," you'll need to visit one of more than 300 local audiologists Altec Lansing has pre-approved to create individual ear molds. ACS will use these to craft the monitors in its private labs using medical-grade silicone, which will help the monitors form a complete seal once inserted to isolate noise up to -27dB. Elsewhere, cabling is reinforced with Kevlar, while the custom-molded plug is right-angled and gold-plated. Models include the triple-driver A3 (\$999.95), dual-driver A2 (\$749.95), and single-driver A1 (\$499.95).

SCHEDULING Tools

Manage Your Time With These Apps & Services



Keeping track of your daily schedule can sometimes prove difficult. When you are juggling work and a family/busy home life, things can get hectic quickly if you are not organized. With the help of a variety of apps and your favorite mobile device or PC, you can keep on top of all your work meetings and trips and all those family activities.

Task, calendar, and scheduling apps let you store important dates and to-do-lists. We'll highlight a few examples of scheduling apps that will hopefully keep you on track in both your business and personal life.

SCHEDULING ON YOUR SMARTPHONE

There's nothing more helpful than having your entire schedule tucked away in your pocket and ready for reference. You use your smartphone for everything from making calls and sending text messages to surfing the Web and checking your email. It makes sense to use the onboard calendar to display what you have scheduled for the day, week, month, or year; or you can take advantage of any of the apps available for your specific phone.

If you're an iPhone user, you might consider Intersog's Schedule Planner. This free app, available via iTunes, lets you track every facet of your life including business tasks, meal times, health and exercise information, and more. The entire setup is color-coded, so all of your stored information is labeled and easily accessible. There is also a Pro version of the app available for \$5.99 that gives you the ability to copy and paste information, receive alerts and notifications, and sync with Google Calendar or iCal.

If your mobile device of choice is an Android, you can download C-Shock's

AA Task (Schedule & Memo). This free app lets you create schedules, memos, tasks, to-do lists, and more. With AA Task (Schedule & Memo), you'll never miss an important work-related deadline or your wedding anniversary. You can set alarms, enter information via voice commands, and sync data with your Google Calendar. You also can use the app as a widget.

If you are a BlackBerry user, maybe you prefer to use your smartphone's Calendar feature instead of a third-party calendar app. Infinite Appz 1-Click Calendar (\$0.99 from BlackBerry App World) lets you create a link to your



1. Intersog Schedule Planner's task creator lets you create a category for a task, designate a title for the tasks, and provide meeting starting and ending times.

2. C-Shock AA Task makes tracking activities convenient because you can color-code activities and include memos as necessary.

BlackBerry calendar in some of your most commonly used programs (email, social networking programs, and so on). With this app, you no longer have to launch BlackBerry Calendar separately, saving you time and making scheduling easier.

TRACK TASKS WITH YOUR TABLET

Tablets are becoming more popular in the workplace and at home. They give users another option for accessing the Internet, checking email, and completing a variety of other tasks. Tablets are a good tool for keeping track of

your personal and business information and activities, as long as you have the right apps to help you.

For instance, iPad owners can use the calendar and productivity apps that Apple loads on the device, or they can search for others such as Steven Romej's Planner For iPad-Weekly Calendar And Tasks (\$2.99 from iTunes). Planner For iPad provides a two-pane view of your week: the left side is a calendar and the right side is your to-do-list outlining the tasks you need to complete that week. The weekly view is nice for people that don't always know or want to know what's coming up in the months ahead and prefer to focus on the tasks at hand. If you have much to do, you can color-code events in the customizable calendar pane.

As Android tablets begin to gain ground in the marketplace, developers are introducing new apps for the devices all the time. Checkmark Calendar Pro from GreenbeanSoft (available for \$2.99 from Android Market) was recently updated to include support for tablet devices, so you can install it on your Android tablet to keep track of your tasks and know what's coming up next on your schedule. A free version of the app is available if you'd like to try it out before you buy.

KEEP UP ON YOUR COMPUTER

If you use your home computer or laptop to keep track of schedules and upcoming tasks for each member of your family, you can always keep track of things on its default calendar program and utilities. But you may find those tools lack some features that you can find in some third-party offerings. For instance, you may want to look for an online-based service that lets you schedule events with friends, family, co-workers, or clients.

Doodle (www.doodle.com) is a free online scheduling tool that requires no registration, so you can start setting up meetings and events right away. To get started, simply input a title, location, and description of an event. Next, enter your name and email address. Then suggest times for the event, customize it to fit your needs, and send invites to all involved. Although the free version of Doodle may not work the best for fast-paced business environments (details about business-type plans follow), it's a fun alternative for scheduling activities that involve your family and friends. Doodle is available in Solo and Business versions that cost \$39 per user per year or \$159 for five users per year (with more options available up to 1,000), respectively. For larger companies that need to fill the needs of more than 1,000 users, and

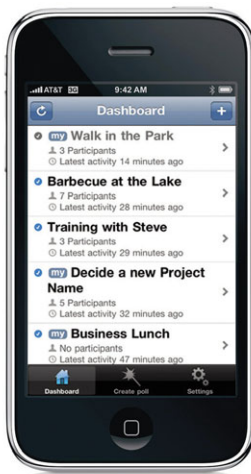


Steven Romej's Planner For iPad displays your calendar and to-do-list side-by-side, so you'll always know what's coming up on your schedule.

Enterprise plan is available, but you'll need to contact Doodle for prices.

EXPLORE YOUR OPTIONS

Regardless of what device you're using, it's a good idea to have some type of calendar at your disposal. And it doesn't hurt to have a pocket personal assistant either. We only touched on a few options that are available to mobile users. You can further explore the apps stores for the device you use and look for highly rated options that match your needs. ●



Doodle also has an iPhone version that lets you use an interface that is similar to the online service.



■■■■■■■■■■

The scramble for companies to leverage Wi-Fi to boost bottom lines

and customer loyalty has resulted in a confusing number of service configurations. Here's the rundown on some issues you will encounter—and also how to connect in the wisest manner possible.

■■■■■■■■■■



Use Wi-Fi Hotspots Wisely

THE UGLY FACT IS that someone with enough skills and determination can hack into any network, and all but the most secure, private connections can be hacked by someone of average skill and enough determination. Consequently, the most important thing you can do to use Wi-Fi hotspots wisely is to lock down your data and system.

HOW TO PROTECT YOURSELF

We urge you not to surf without a firewall. If you do not have firewall software installed, turn on Windows' built-in firewall protection. Because many users have third-party firewall software installed, we won't detail these instructions here. You can locate available firewall programs by browsing to windows.microsoft.com and searching for Firewall (your version of Windows).

The next step is to secure your data. Windows Vista and Win7 give

you the option of selecting a network profile (Home, Work, or Public) when you connect. Always select Public unless you trust the network and its members. Doing this prevents other computers on the network from discovering your PC and turns off the File And Printer Sharing feature. You can tweak any of these settings in the Network And Sharing Center: Right-click the network icon (a monitor or series of bars, potentially with a red X or starburst on top) at the bottom right of your display. Select Network And Sharing Center in Vista; Open Network And Sharing Center in Win7.

In WinXP, File And Printer Sharing is turned off by default. To enable this feature, right-click the network (monitor) icon at the bottom right of your display and select Open Network Connections. Right-click the icon for your wireless device and click

Properties. Under the General tab, deselect the File And Printer Sharing For Microsoft Networks checkbox to turn sharing off globally. When you return to a safe environment, you can re-enable this feature when necessary. In Vista/Win 7, you can also turn off the File And Printer Sharing feature manually through the OS's Network Connection Properties feature, but it's easier to let Windows do it for you.

HOW TO CONNECT THROUGH WINDOWS

To connect to a wireless network, right-click the network icon and then select View Available Wireless Networks (WinXP) or Connect To A Network (Vista). In Win7, select the Network icon.

A menu will pop up displaying available networks. Each OS will identify whether networks are secure. If the network you want is open, select

it and click Connect. We advise not connecting to an open network unless you know it is the one you seek. Hackers set up open networks with friendly sounding names hoping that unsuspecting individuals will hop onto them.

If you are connecting to a secure network, or if you don't know the name of the network you want, contact the network host. You'll need the network name (also called a service set identifier or SSID) and, if the network is secure, a security key or passphrase. Select the desired network and provide the key if prompted. (See the "How To Evaluate Security" section before you complete this step.)

If you use WinXP, your network card may manage network connections, leaving you unable to connect using our instructions. To give Windows control, click Start, select Control Panel, click Network And Internet Connections, and select Network Connections. Right-click your wireless connection and click Properties. Click the Network Settings tab and select the Use Windows To Configure My Wireless Network Settings checkbox.

HOW TO SET UP A MANUAL CONNECTION

If you cannot locate the network you want (because some networks

choose not to broadcast their SSIDs), you can set it up manually. In addition to the network, name, and credentials, you will need the network security protocol and encryption type (TKIP or AES).

To set up a manual connection in WinXP, open the available networks list as described previously and click Advanced or Change Advanced Settings (depending on the service pack that you have installed). On the Wireless Networks tab, click Add. In Vista/Win7, open the Network And Sharing Center. In Vista, click Set Up A Connection Or Network at the top left of the display; in Win7, click Set Up A New Connection Or Network (under Change Your Network Settings). Select Manually Connect To A Wireless Network and click Next.

Provide the information exactly as you were given it (uppercase and lowercase). In Vista/Win7, you can opt to see the characters as you type for confirmation. If the network is WEP and you don't see this option, select Shared. Select an encryption type or keep the default. After entering all this information and configuring

the desired settings, click OK or Next to connect.

HOW TO EVALUATE SECURITY

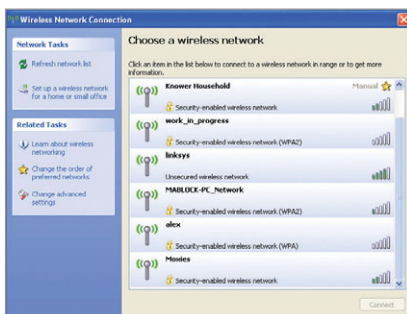
Most private, as well as some public, networks use one of several security standards to protect users and themselves from intrusion. You will encounter WEP, WPA, and possibly WPA2. The Wireless Network Connection dialog box may provide the network type. If not, here's a hint: WEP security keys always contain 26 characters; WPA and WPA2 security keys are eight to 63 characters in length.

WEP is the least secure and easiest to crack; treat a WEP network as you would an unsecure network, setting its profile to Public unless you absolutely must communicate with other PCs. WPA and WPA2 are more impervious to cracking, so you can use a profile that is more open, such as Work, if necessary (or tweak the settings in the Public profile to open things up as needed).

TAKE CHARGE

At the end of the day, the responsibility for protecting your assets lies with you. Using common Internet precautions is also a good idea. Before you provide sensitive information, be sure you are at a secure site. The Web address should begin with "https" instead of "http," and your browser should display a padlock icon or other security confirmation. Check with your email provider to see if you can encrypt your email messages. Another precaution you can take is to turn off your wireless adapter when you are not using the Internet. To turn wireless off, right-click the icon for your wireless connection in the System Tray and select Disable. ●

Most private,
as well as some
public, networks
use one of several
security standards
to protect users
and themselves
from intrusion.



Windows XP/Vista/7 all provide a wireless connection display that lets you determine if a network is secure or open (WinXP displayed).



In Vista/Win7 the Network And Sharing Center is your portal to setting up new connections, changing network profiles, and more.

What should
you do when your
smartphone decides
to play dead?

*Resist the urge to throw it against
the nearest wall and try one of
these techniques instead.*



Revive A Dead Smartphone

SOFT RESET

ALL PHONES HAVE a soft reset function, which is similar to restarting your computer. Beware that a soft reset will cause you to lose data that isn't saved, but you will retain information previously stored on your smartphone.

► **Android (Other).** All remaining Android models use a simple power cycle to perform a soft reset. Just turn the phone off and then back on again.

► **BlackBerry (QWERTY).** Press and hold the ALT-CAP-DEL keys. The display goes black and your phone resets.

► **BlackBerry (SureType).** Press the ALT-CAP and Right Shift-DEL keys. When the screen goes blank, release the keys.

► **BlackBerry (touchscreen).** Turn the BlackBerry off and remove the battery

for at least 30 seconds. Reinstall the battery and turn the device back on.

► **iPhone 4 and earlier.** Simultaneously press and hold the Sleep/Wake button on the top of the iPhone and the Home button. Hold both buttons for approximately 10 seconds, until the screen goes blank. You'll see the Apple logo as the iPhone reboots.

► **iPhone 4S.** Simultaneously press and hold the On/Off button on the top of the iPhone and the Home button. Hold both buttons for approximately 10 seconds, until the screen goes blank. You'll see the Apple logo as the iPhone reboots.

► **Microsoft Windows Phone 7 (all models).** Power the phone off and then back on. If the power cycle doesn't correct the problem, try removing the battery and replace it after 30 seconds.

► **Nokia (all models).** Power the phone off and remove the battery for 30 seconds. Reinstall the battery and power the phone on. Alternately, you can enter the code *#7380# and select Yes.

► **Palm Pre.** If the phone's menus are active, select Device Info, Reset Options, then select Soft Reset. If it is locked or frozen, hold the power button and cycle the ringer button on and off three times. If that doesn't work, press and hold the Orange, Sym, and R keys until the device reboots. Turn the phone off, remove the battery for 10 seconds, reinstall the battery, and power the phone up.

► **T-Mobile myTouch 4G Slide.** Unlock the display. Press and hold the Power/Lock button and then tap Restart. When asked to confirm, tap Restart again. If the phone doesn't restart, remove the batteries for 30 seconds.

➤ **All other smartphones.** You can generally perform a soft reset by powering the phone off, removing the battery for 30 seconds, and powering the phone on.

HARD RESET

A hard reset is a last-ditch option that returns your phone to its factory settings, which means you will lose all data and installed applications. Before you perform a hard reset, remove the memory card from your phone; that way you can recover data from the card later.

➤ **Android (all models with functioning menu systems).** One of the following menu-based systems for performing a hard reset should work, depending on the phone and version of Android. Open the application menu. Tap Settings, SD and Card Storage, Factory Data Reset, and follow the on-screen instructions.

- From the Home screen, you'll want to tap Menu, Settings, Privacy, and Factory Data Reset, and then follow the on-screen instructions.
- From the Home screen, you'll want to tap Menu, Settings, Security, and Factory Data Reset, and then follow the on-screen instructions.

When the menu system isn't functional, follow these phone-specific options to perform a hard reset.

➤ **BlackBerry (all models).** Remove the battery for 30 seconds. Reinstall the battery and turn the phone back on.

➤ **BlackBerry Style, Bold, Storm, Curve, Tour, Torch.** Click the Options icon on the Home screen. Select Security and then Security Wipe. Select all three of the available checkboxes to perform a complete wipe and reset the device to factory condition. Type the word BlackBerry and click Wipe.

➤ **Dell Venue.** With the device turned off, press and hold the Volume Up and Volume Down buttons. Without releasing the buttons, press and hold the

Power button. When the device configuration screen appears, release all buttons. Use the Volume Up or Down button to move to Factory Reset. Press the Camera button to select the Factory Reset option and start the reset process.

➤ **Google Nexus One, Nexus S.** Turn the phone off. Press and hold Volume Down while you press and release the Power button. Use the Volume Down button to select Clear Storage from the list of options. Press the Power button, and confirm your selection by pressing the Volume Up button.

➤ **HTC Arrive, HD7, Surround.** Press Start and tap the right-facing arrow. Tap Settings, About, and then tap Reset Your Phone. Tap Yes, and then tap Yes again. If the screen is frozen, turn the device off. Press and hold the Volume Up-Down buttons and briefly press the Power key. When the screen displays instructions for resetting the device, release the Volume Up-Down buttons.

➤ **iPhone (all models).** From the Home screen, tap Settings, General, Reset, and Reset All Settings. This resets all preferences but retains applications and data. If that doesn't work, from the Home screen, tap Settings, General, Reset, Erase All Content, and Settings. This will delete all data and applications and return the iPhone to factory conditions.

➤ **Microsoft Windows Phone 7 (all models).** Press Start and tap the right-facing arrow. Tap Settings, About, and Reset Your Phone. Tap Yes, and then tap Yes again.

➤ **Motorola Droid.** Turn the phone off. Press and hold the Power-X keys to force the phone into recovery mode. Next, press and hold the Volume Up-Camera key, select Wipe Data/Factory Reset, and then select Reboot Phone.

➤ **Motorola Droid Pro, Droid 2 Global, Droid 3, Droid Bionic, Droid Razr.** On the Home Screen, open the App

menu and select Settings, Privacy, and Factory Data Reset. When prompted, tap Reset Phone to erase all data and return phone to factory conditions.

➤ **Motorola Backflip.** Power the phone off. Press and hold the Power and Camera buttons. When the phone turns on, release the Power button but continue to hold the camera button until prompted to release it. Next, press the Volume Down button. After about 15 seconds, a yellow triangle with an exclamation point will appear. With your phone closed, tap the bottom-right corner of the display and select Wipe Data/Factory Reset. Press OK and follow the on-screen instructions.

➤ **Nokia (all models).** With your phone powered on or in standby mode, type *#7370# and select Yes, when prompted. You may need your Lock Code for confirmation. The default lock code is 12345. If your phone doesn't turn on, try pressing the On/Off button, *, and 3 simultaneously.

➤ **Samsung Galaxy Nexus (Android 4.0).** Turn off the phone. Press the Volume Up and Power buttons. When the Recovery Menu appears, use the Volume Down button to select Recovery, and then press Power. The phone will reboot; this process can take a bit of time. If the phone fails to reboot, remove the battery, wait about 30 seconds, and then reinsert the battery.

➤ **T-Mobile G2x.** If possible, back up your data to Google's servers by selecting Privacy from the Settings screen. Select the Back Up My Data option. When the backup is complete, power off the phone. Press and hold the Power/Lock-Volume Down keys for at least 15 seconds. The phone should turn back on and perform a factory reset. If the screen is frozen, or the phone doesn't turn back on, remove the battery, wait 30 seconds, then reinstall the battery and try again. ●



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The Traveler's 911 Directory

AIRLINES

►Air Canada

www.aircanada.com
mobile.aircanada.ca
Information and reservations
(888) 247-2262
Baggage information
(888) 689-2247

►American Airlines

www.aa.com; mobile.aa.com
Reservations (800) 433-7300
TDD (800) 543-1586
Flight information
(800) 223-5436
Baggage delayed less than five
days (800) 535-5225
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www.britishairways.com
ba2go.com (mobile)
Information and reservations
(800) 247-9297

►Continental Airlines

www.continental.com
pda.continental.com
Reservations to U.S. and Mexico
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Reservations to international
destinations (800) 231-0856
TDD (800) 343-9195
Flight information
(800) 784-4444
Baggage information
(800) 335-2247
OnePass frequent flyer
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►Delta Air Lines

www.delta.com
mobile.delta.com
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(800) 325-1999
Baggage information
(800) 325-8224
SkyMiles members
(800) 323-2323

►Frontier Airlines

www.frontierairlines.com
Reservations (800) 432-1359
Customer relations
(800) 265-5505

►JetBlue Airways

www.jetblue.com
mobile.jetblue.com
(800) 538-2583

►Lufthansa

www.lufthansa.com
mobile.lufthansa.com
Information and reservations
(800) 399-5838

►Southwest Airlines

www.southwest.com
mobile.southwest.com
(800) 435-9792
TDD (800) 533-1305

►Spirit Airlines

www.spiritair.com
(800) 772-7117

►United Airlines

www.united.com
www.ua2go.com (mobile)
Reservations (800) 864-8331
International reservations
(800) 538-2929
TDD (800) 323-0170

►US Airways

www.usairways.com
Reservations to U.S. and Canada
destinations (800) 428-4322
Reservations to international
destinations (800) 622-1015
TDD (800) 245-2966
Customer service
(800) 943-5436

VEHICLE RENTALS

►Advantage Rent A Car

www.advantage.com
Reservations (866) 661-2722 or
(210) 344-4712 outside the U.S.
Customer service
(800) 777-5524

►Alamo Rent A Car

www.alamo.com



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(800) 462-5266
TDD (800) 522-9292

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www.avis.com
mobile.avis.com
Reservations (800) 331-1212
TDD (800) 331-2323
Customer service
(800) 352-7900

►Budget Rent A Car System

www.budget.com
mobile.budget.com
Reservations in the U.S.
(800) 527-0700
Reservations outside the U.S.
(800) 472-3325
TDD (800) 826-5510
Roadside assistance
(800) 354-2847
Customer service
(800) 214-6094

►Dollar Rent A Car

www.dollar.com
Reservations (800) 800-3665
Reservations outside the U.S.
(800) 800-6000
TDD (800) 232-3301
24-hour roadside assistance
(800) 235-9393

►Enterprise Rent-A-Car

www.enterprise.com
Reservations (800) 261-7331
TDD (866) 534-9270

►Hertz

www.hertz.com
hertz.mobi
Reservations (800) 654-3131
Reservations outside the U.S.
(800) 654-3001
TDD (800) 654-2280
Extend rental (800) 654-4174
Billing information
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Customer relations
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►National Car Rental

www.nationalcar.com
(800) 227-7368
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►Payless Car Rental

www.paylesscarrental.com
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►Thrifty Car Rental

www.thrifty.com
Reservations (800) 847-4389
Emergency (877) 283-0898

TRAVEL SERVICES

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www.aaa.com
aaa.mobi
Roadside assistance
(800) 222-4357

►Expedia

www.expedia.com
(800) 397-3342

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www.hotwire.com
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OCS (Overseas Citizens
Services) traveler's
hotline (202) 647-5225
or (888) 407-4747
After-hours emergencies
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►Orbitz

www.orbitz.com
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(888) 656-4546

►Priceline

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priceline.mobi
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www.travelocity.com
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HOTELS

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www.candlewoodsuites.com
mobile.candlewoodsuites.com
(888) 226-3539

►Chase Suite Hotels

www.woodfinsuitehotels.com
(800) 966-3346

►Choice Hotels International

(Cambria Suites, Comfort Inn,
Comfort Suites, Quality Inn, Sleep
Inn, Clarion, MainStay Suites,
Suburban Extended Stay Hotel,
Econo Lodge, and Rodeway Inn)
www.choicehotels.com
(877) 424-6423

►Courtyard Hotels

www.courtyard.com
courtyard.mobi
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►Crowne Plaza Hotels & Resorts

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►DoubleTree Hotels

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doubletree.mobi
(800) 222-8733

►Embassy Suites Hotels

www.embassysuites.com
embassysuites.mobi
(800) 362-2779

►Four Seasons Hotels & Resorts

www.fourseasons.com
mobile.fourseasons.com
(800) 819-5053

►Hampton Inn Hotels & Suites

www.hamptoninn.com
hamptoninn.mobi
(800) 426-7866

►Hawthorn Suites

www.hawthorn.com
(800) 527-1133

►Hilton Hotels

www.hilton.com
hilton.mobi
(800) 445-8667

►Holiday Inn

www.holidayinn.com
mobile.holidayinn.com
(888) 465-4329

►Holiday Inn Express

www.hiexpress.com
mobile.hiexpress.com
(888) 465-4329

►Homewood Suites

www.homewoodsuites.com
homewoodsuites.mobi
(800) 225-5466

►Hyatt Hotels & Resorts

www.hyatt.com
(888) 591-1234
TDD (800) 228-9548
Hyatt Place (888) 492-8847
Hyatt Summerfield Suites
(866) 974-9288

►Marriott

www.marriott.com
marriott.mobi
(888) 236-2427

►Park Plaza

www.parkplaza.com
(800) 777-1700

►Radisson Hotels & Resorts

www.radisson.com
(888) 201-1718

►Ramada Worldwide

www.ramada.com
(800) 272-6232

►Renaissance Hotels & Resorts

www.renaissancehotel.com
(888) 236-2427

►Residence Inn

www.residenceinn.com
residenceinn.mobi
(888) 236-2427

►Ritz-Carlton Hotels & Resorts

www.ritzcarlton.com
(800) 542-8680

►Sheraton Hotels & Resorts

www.sheraton.com
(800) 325-3535

►Staybridge Suites

www.staybridge.com
mobile.staybridge.com
(877) 238-8889

►Westin Hotels & Resorts

www.westin.com
(800) 937-8461

►Wingate Inns

www.wingateinns.com
(800) 228-1000

►Wyndham Hotels & Resorts

www.wyndham.com
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HAPPY TRAILS

..... Intriguing Gear, New & Around The Bend



A SMARTPHONE THAT MAKES SOME NOISE

► With its new HTC Rezound, HTC has upped the ante on smartphone audio and video. What sets this phone apart from others is its Beats Audio integration. Beats Audio is a digital signal processing technology that accommodates a full range of sound for clear audio that sounds like it was intended to sound, with bass and crisp treble. Combine that with a 4.3-inch 720p HD screen and you have an immersive audio-video experience.

The Rezound also takes advantage of the newest HTC Sense graphical interface features. You can, for example, automatically jump to your most frequently used app whenever you open the lock screen. You can also schedule tasks directly from email and text messages and sync those tasks with Microsoft Exchange. Of course, that doesn't mean you can't enjoy the aforementioned entertainment features, as well. The HTC Rezound is available from Verizon for \$299.99 with a two-year contract.

A MOTOROLA THROWBACK

► Motorola has resurrected the Razr name (perhaps with the hope of resurrecting the Razr's success, as well) with its new Droid Razr. This Android 2.3 (Gingerbread) smartphone shares little more than its name and thin profile, however, with its spiritual successor, the Motorola Razr. The Droid Razr sports a 4.3-inch Super AMOLED display designed for high-definition visuals and protected by a coating of Gorilla Glass. It features a 1.3MP front-facing camera that lets you capture images and shoot 720p HD video. The 8MP rear camera is capable of recording 1080p HD video.

The Droid Razr packs a punch on the inside with a dual-core processor and 1GB of RAM. It also includes 32GB of total storage: 16GB internal and 16GB on a pre-installed microSD card. The phone also comes preloaded with a pack of Google apps, and you'll have access to many more with the Android Market. The Droid Razr is \$299.99 with a two-year contract.

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Certified Piedmontese Beef

Now you can have your beef and eat it too... Guilt-free.

Unlike conventional beef, Certified Piedmontese doesn't need fat to be tender. Instead, it's naturally lean, naturally tender—so you get all the taste and tenderness you love, but less of the fat you don't need.



Filet Mignon

The leanest and most tender cut of beef, the filet is often called “the king of steaks,” and with good reason.

Four 8-oz: \$55.95



New York Strip

A perfect balance of marbling and tenderness makes this steak widely appealing to a variety of tastes.

Four 8-oz: \$39.95



Sirloin Filet

You won't believe it's not tenderloin: Because of the extra lean and tender characteristics of Piedmontese beef, this cut closely resembles tenderloin, but at a fraction of the price.

Four 8-oz: \$31.95



Cowboy Cut Ribeye

Like the boneless ribeye, a flavorful, tender steak, but with the taste accentuated by the added flavor of the bone-in.

Two 20-oz: \$47.95



Boneless Ribeye

The natural leanness of Certified Piedmontese makes this a flavorful steak with a melt-in-your-mouth tenderness, but without the guilt of a traditional ribeye.

Four 10-oz: \$49.95



Boneless Strip Loin Roast

Like the New York strip steaks that come from this roast, this cut balances marbling and tenderness, making it a guaranteed crowd-pleaser. Can also be cut into steaks of varying sizes, depending on family or guest preferences.

One 80-oz: \$98.95



Standing Rib Roast

The prime rib is known for its buttery flavor and tenderness, and a Certified Piedmontese standing rib roast delivers on both counts.

One 80-oz: \$93.95



Tenderloin Roast

Lean and tender, this roast is easy to prepare and will easily take on your favorite flavors and seasonings.

Two 32-oz: \$111.95

Gift Box Collections

Elite

\$80.95

2 10-oz Sirloin Filet
2 16-oz Bavette Steak
2 16-oz Flank Steak
1 16-oz 85% Ground Beef

Premium

125.95

3 20-oz Cowboy Cut Ribeye
4 8-oz Filet Mignon

Supreme

\$196.95

1 32-oz Tenderloin Roast
4 12-oz New York Strip
4 10-oz Boneless Ribeye
1 32-oz Sirloin Roast

Prestige

\$203.95

4 10-oz Boneless Ribeye
4 12-oz New York Strip
4 10-oz Sirloin Filet
4 8-oz Filet Mignon



Brisket Flat

Great for summer barbecue or the smoker, a Certified Piedmontese brisket is also perfect for the oven or slow cooker.

One 48-oz: \$37.95



Eye of Round Roast

Flavorful and normally cut thin, an eye of round roast is a good value and is excellent braised or prepared in the slow cooker

One 64-oz: \$49.95



Sirloin Roast

Lean and tender, the sirloin roast, like the tenderloin, takes on flavors extremely well and can feed a large group at a reasonable cost.

One 32-oz: \$31.95



Bavette Steak

Similar to a flank steak, the lesser-known bavette is a great value, and a Piedmontese bavette is so tender that it's suitable for a variety of preparations.

Two 16-oz: \$26.95



Beef Kabobs

Lean and juicy, these are guaranteed to be the most tender and tastiest kabobs you've ever eaten.

Three 16-oz: \$21.95



Tenderloin Tips

Think of these as bite-sized filet mignons: Juicy, flavorful, and buttery tender. Goes well with anything, but especially with pasta.

Three 16-oz: \$51.95



Flank Steak

The long and flat flank steak is great for ethnic dishes; unlike some conventional flank steaks, a Piedmontese flank steak is tender enough to prepare using a variety of cooking methods.

Three 16-oz: \$44.95



Stew Meat

Certified Piedmontese stew meat is all natural and makes for a rich and hearty addition to any stew or soup. The perfect meal for warming up those cold winter nights.

Three 16-oz: \$21.95



85% Lean Ground

The wonderful taste and succulent texture of all-natural Piedmontese ground beef, ground to 85% lean to create a consistently rich, meaty flavor. Perfect for grilling or broiling.

Three 16-oz: \$18.95

For more details and ordering information, go to www.piedmontese.com.



Certified Piedmontese Beef

Delicious Nutrition, Now Available Online

Certified Piedmontese beef tastes great: lean and tender, juicy and delicious. But there's more to it than just tasting good. Certified Piedmontese is also low in fat, low in cholesterol, and low in calories. At the same time, it's protein-rich and high in omega fatty acids—the kind that your body needs in order to stay strong and healthy. With Certified Piedmontese, you get all the taste and tenderness without all the fat.

CERTIFIED PIEDMONTESE
By Great Plains Beef

Free Shipping For a limited time.
Orders are shipped frozen and will arrive in 4-7 business days.

RECIPES VIDEOS ABOUT CERTIFIED PIEDMONTESE CONTACT US

UNIQUE GIFT BOX COLLECTIONS

ELITE \$80.95
2 10-oz. Sirloin Filet
2 16-oz. Bavette Steak
2 16-oz. Flank Steak
1 16-oz. 85% Ground Beef
ADD TO CART

PREMIUM \$125.95
3 20-oz. Cowboy Cut Ribeye
4 8-oz. Filet Mignon
ADD TO CART

SUPREME \$196.95
1 32-oz. Tenderloin Roast
4 12-oz. New York Strip
4 10-oz. Boneless Ribeye
1 32-oz. Sirloin Roast
ADD TO CART

PRESTIGE \$203.95
4 10-oz. Boneless Ribeye
4 12-oz. New York Strip
4 10-oz. Sirloin Filet
4 8-oz. Filet Mignon
ADD TO CART

PREMIUM CUTS OF PIEDMONTESE BEEF

Filet Mignon **ADD TO CART**
Six 6-oz. \$62.95
Four 8-oz. \$55.95

New York Strip **ADD TO CART**
Four 8-oz. \$39.95
Four 12-oz. \$59.95

Boneless Ribeye **ADD TO CART**
Four 10-oz. \$49.95
Four 14-oz. \$69.95

Sirloin Filet **ADD TO CART**
Four 8-oz. \$31.95
Four 10-oz. \$38.95

Cowboy Cut Ribeye **ADD TO CART**
Two 20-oz. \$47.95

Tenderloin Roast **ADD TO CART**
Two 32-oz. roasts \$111.95

Bnls Strip Loin Roast **ADD TO CART**
80-oz. roast \$98.95

Standing Rib Roast **ADD TO CART**
80-oz. roast \$93.95

Brisket Flat **ADD TO CART**
48-oz. \$37.95

Nutritional Comparison

	3.5-Ounce Serving	Calories	Total Fat (g)	Saturated Fat (g)	Cholesterol (g)	Protein (g)
Piedmontese NY Strip USDA Select	149	7	2.63	53	21.68	
Piedmontese NY Strip USDA Choice	184	11.38	4.38	48	21	
Traditional NY Strip USDA Choice	232	15.95	6.44	58		
Traditional NY Strip USDA Prime	281	22.17	9.08			
Pork (Composite)	227	16.45	5.7			
Chicken (Skinless)	119	3.08				
Turkey	110					

Piedmontese beef is safe for individual, clinical Laboratory. Cor 1/8" retail cuts, US



Now buy online at www.piedmontese.com.